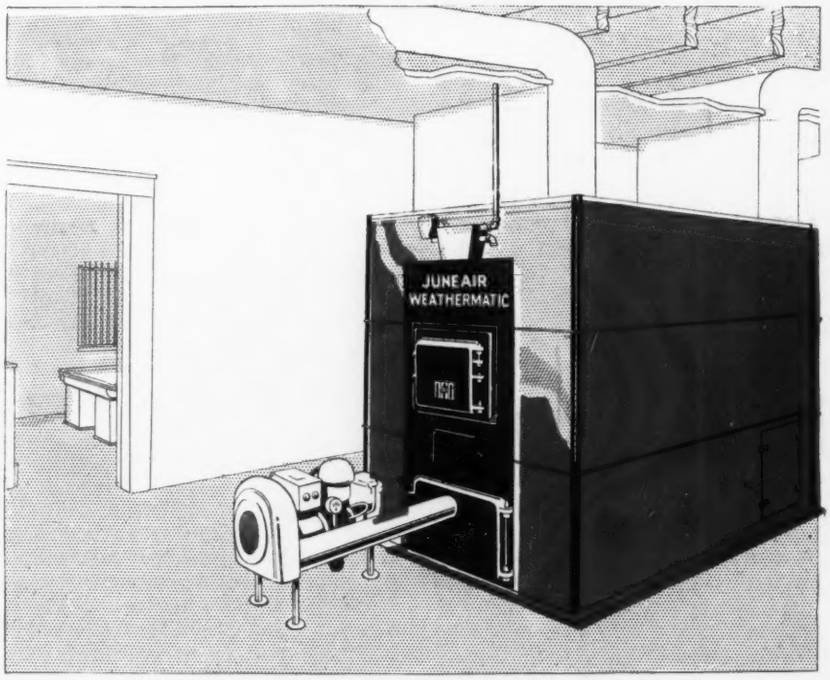
American Artisan

THE WARM AIR HEATING AND SHEET METAL JOURNAL

POSITIVE HEAT



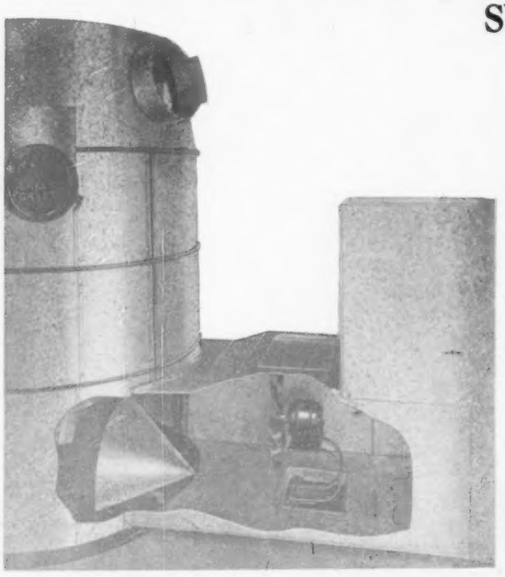
CONDITIONED AIR

JUNEAIR WEATHERMATIC

POSITIVE PRESSURE HEAT AND AIR CONDITIONING FOR HOMES

JUNEAIR Weathermatic is a complete warm air heating, ventilating and air conditioning system for the home. It is built in all sizes to heat homes, from the smallest bungalow to the largest mansion. It is built to burn any fuel—COAL, GAS OR OIL—a different unit being furnished for each of these different fuels. Positive pressure rotary blower, air filters, automatic humidifier, and automatic temperature control are furnished as an integral part of this unit. Operation of both furnace and blower is controlled from room temperature.

This is not a cheap unit, but a high-class air conditioning system that really makes it possible for you to get heating contracts in the largest and finest homes being built in your community. Inquiries are solicited from high class heating contractors.

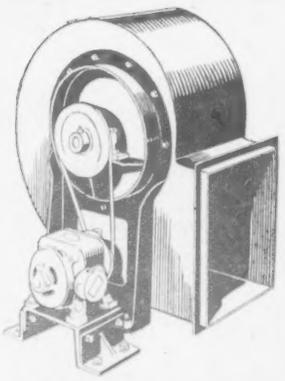


SUREHEET FAN FURNACE UNITS

GREAT improvement over gravity warm air heating is attained by Sureheet Fan Furnace Units, supplied at slight additional cost over a gravity furnace. The unit consists of furnace, automatic humidifier, disc fan and thermostatic control from room temperature. Where a furnace larger than 24″ firepot is required, a positive pressure rotary blower is used.

Sureheet Fan Furnace Units assure quick heating-up, better air circulation, correct moisture content in the air, and greatly added heating comfort at small cost.

Send for descriptive circular and prices.



A rotary blower is used on furnaces larger than 24″ firepot.

AMERICAN FOUNDRY & FURNACE COMPANY

Heating and Ventilating Engineers Since 1874

BLOOMINGTON, ILLINOIS

TUBULAR

RADIANT

WRITE today for full information concerning the complete Thatcher warm-air furnace line and for dealer carload proposition.

METEOR

THATCHER FURNACES

Assure the Dealer Satisfactory Profits and the Owner Years of Service

IT is a known fact that there are still in operation throughout the country hundreds of Thatcher warm-air heaters which have been installed many, many years ago. Such reliability, such economy of operation give every Thatcher dealer unusual data for sales talks on these outstanding warm-air furnaces.

The "Celebrated Thatcher Tubular" was perfected three-quarters of a century ago and with its modern refinements is considered by architects, builders and dealers as the outstanding warm-air furnace made today.

The "Meteor" and "Radiant" furnaces, in both pipe and pipeless models as well as Thatcher "Tubular" have proved a source of steady profits and satisfaction to all dealers.

THE THATCHER COMPANY
39-41 St. Francis Street, Newark, N. J.
New York: 21 West 44th Street Chicago: 341 North Clark Street

THATCHER
BOILERS-FURNACES-RANGES

Published Weekly by Porter, Spofford, Langtry Corp., 139 North Clark Street, Chicago, Illinois. AMERICAN ARTISAN—the Warm Air Heating and Sheet Metal Journal—entered as second class matter, March 26, 1928, at the Post Office at Chicago, Illinois, under act of March 3, 1879. Formerly entered on June 25, 1887, as American Artisan and Hardware Record.

INDEX PAGES—188 and 254 BUYERS' DIRECTORY—256 and 258

Appre

---FROM THE MANUFACTURER

AS the year draws to a close and our books show 1929 to be the banner year for Success Heater sales it is only natural that we should feel appreciative toward Success dealers.

Without smooth cooperation, loyalty and understanding between manufacturer and dealer no product, no matter how good it may be, can possibly enjoy its maximum increase in sales.

While this is true, we fully realize that the appreciation you value more than any other is that which comes from your customers.

Each warm air heating installation you make must *pay you a good profit* and in addition *earn you the customer's good will* before you can count the transaction an asset to the upbuilding of your business.

This is the appreciation that we know Success dealers receive and it is the thought paramount in our minds in the manufacture of Success Heaters.

SUCCESS HEATER MFG. COMPANY
DES MOINES, IOWA

ciation!

---OR FROM YOUR CUSTOMERS?

SUCCESS dealers responded to the "Big Success Idea" sales and advertising campaign in 1929—it helped increase their sales and profits and the good will of these additional customers means still more sales for them in 1930.

Where are you in the quickly changing warm air heating business picture?

Are you in the safest position—selling quality, making sure profits and conducting a business that attracts more business each year?

In 1930 it will be more necessary than ever before to stand on firm ground. Know all about the Success Heater Line — learn about our close, practical sales and engineering cooperation. Find out why Success Heaters are appreciated by their owners.

Write today for the Success Heater catalog. Obtain complete agency details and our sales plans for 1930

SUCCESS HEATERS
will make
1930
your most successful year

Many WEIR dealers they *too* couldn't sell

The Original Steel Furnace Now In Its Forty-Eighth Year

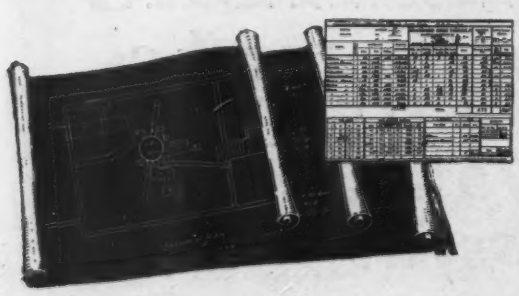
SOME of the most successful Weir dealers were once *unsuccessful* specialists in low priced furnaces—low quality warm air heating installations.

We frankly acknowledge the belief that in many instances, in spite of the fact that the dealer *knew* that the quality of the Weir was what he *ought* to sell and what his customers *ought* to have, he took on the Weir with serious doubts in his mind as to his ability to close sales on account of the higher price he must ask.

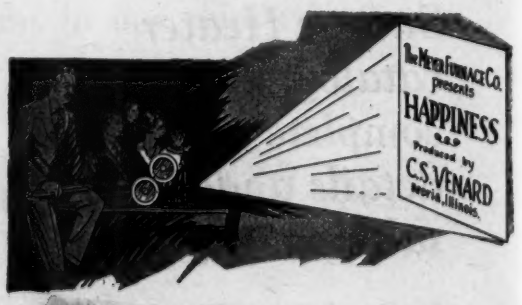
But it is a *fact* that the Weir has been the *sole reason* for a change from loss to profit for many such warm air heating men.

The Weir caused many dealers to talk not only *quality* furnaces but *quality installations—Standard Code* installations, if you please, because even so fine a furnace as the Weir is guaranteed to heat properly only when installed according to the Standard Code.

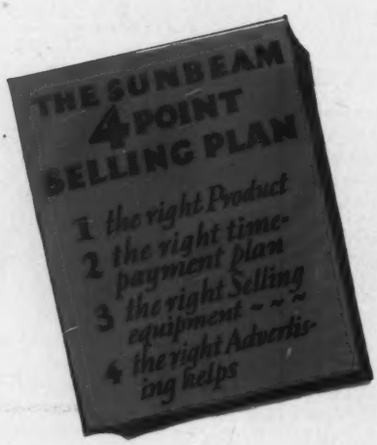
THIS is the type of newspaper advertising Weir dealers are furnished with. High grade copy that *sells warm air heating* as well as the Weir.



A SET of plans that show the prospect just how you will heat his home and how much it will cost him, sell jobs that are often lost otherwise. Our experienced engineers render this service to Weir dealers.



THE motion picture film, "Happiness," which sells the idea of warm air heating with the Weir, is for Weir dealers' use. Here is a sales help that is as effective as it is unusual—and only WEIR offers it.



ALERT heating merchandisers—heating contractors who devote much of their effort to selling non-competitive, replacement jobs—find that the Sunbeam 4 Point Selling Plan enables them to obtain a large volume of this high-profit business from one end of the year to the other. First of all, they have a nationally known furnace backed by the world's largest makers of heating equipment; second, a better time payment plan for financing sales; third, a miniature aluminum furnace in an attractive case, so their salesmen can demonstrate Sunbeam superiorities to home owners; and fourth, virtually every kind of advertising help to locate, interest and sell prospects.

For full details, use the coupon on the opposite page.

The New Sunbeam Furnace, 1000 Series. One-piece radiator; duplex grates; all vertical joints eliminated.

The New Steel Furnace. Duplex grates; full-height fire pot; no direct connection between drum and casing.

The C Series Sunbeam. Unsurpassed in heating ability and long life; hundreds of thousands in use.

A FURNACE FOR EVERY REQUIREMENT ✣ Quality and Price, Both

THERE is a Sunbeam Furnace—cast or steel—for every warm-air heating requirement. Whatever the deciding factor may be—size—type of construction—the fuel to be used—the reputation of the manufacturer—quality—price—the Sunbeam Heating Contractor can meet every demand! Can land the sale, at a satisfactory profit.

You cannot appreciate the amazing advantage enjoyed by Sunbeam dealers until you have examined the complete Sunbeam Furnace line—familiarized yourself with the business-getting features of the 4 Point Selling Plan—and compared prices.

The coupon will bring the complete 1930 Proposition, which, in our opinion, will deeply impress you with its amazing profit possibilities. Sign and return the coupon today. You should have the Sunbeam Program, before you complete your plans, or make commitments, for 1930.

THE FOX FURNACE COMPANY
ELYRIA, OHIO

A DIVISION OF
AMERICAN RADIATOR & STANDARD SANITARY CORPORATION

YOU SHOULD HAVE THE 1930 PROGRAM WHICH THIS COUPON WILL BRING YOU

THE FOX FURNACE CO.
ELYRIA, OHIO

Please send us immediately, the complete Sunbeam Selling Program for 1930.

Name_____

Address_____

City and State_____

S-1

1930 promises better business

for the man of ability especially

HEATING
SUPER AIR
Reg. U.S. Pat. Off.
SYSTEMS

—are as great an improvement over the old style warm air systems (even the best) as electric refrigerators are over the old style ice box. Why? Because they include these ADDED features:
FAN to insure positive circulation;
AUTOMATIC CONTROL to maintain steady temperature and save fuel;
AIR FILTER to keep the air clean;
HUMIDIFIER to keep the air healthfully moist;
and OZONIZER to keep the air pure and raise the oxygen content. No other type of heating system can possibly supply these advantages. Successful with coal, coke, oil and gas.

Knowledge! Skill! Enterprise! Combine these qualities and you have ABILITY; the working partner you need in your business this coming year. Lady Luck is never dependable ,, Ability always is!

What more do you need? Just one thing more ,, and that's a high grade product to sell. In your business that means "FRONT RANK".

Front Rank Heating Systems lift your heating work far above the cheap, competitive class. They bring you a better type of business. Your profits become longer, surer. And every installation is a boost for more sales and more profits.

Get in on the growing market for the new SUPER-AIR heating systems! Get your share of better business for 1930, by making the Front Rank Heating System YOUR leader.

1888—42 YEARS OF CONSTANT ADVANCE—1930

with HEATING FRONT RANK SYSTEMS

TRADE NAME REGISTERED

THE NATIONAL WARM AIR HEATING ASSOCIATION is working towards a tremendous co-operative advertising campaign for 1930.

Interesting, readable, persuasive advertising about Warm Air Heating Systems! Preaching the many advantages of warm air, telling about Standard Code installations. In short, advertising YOU and your business.

Are YOU going to benefit? You are—if you handle Front Rank Heating Systems. Look into the Front Rank proposition at once. It offers you something different—just a little better than any and much better than most plans.

Warm Air Heating Systems are growing in popularity, and the 1930 campaign will help tremendously. Climb on the band wagon!

If you know you have knowledge, skill and enterprise. If you know the heating business and have confidence in its immediate future, you are the man we want; and we have the heating system you want. Write us for details of our interesting proposition, a money maker for men of ability.

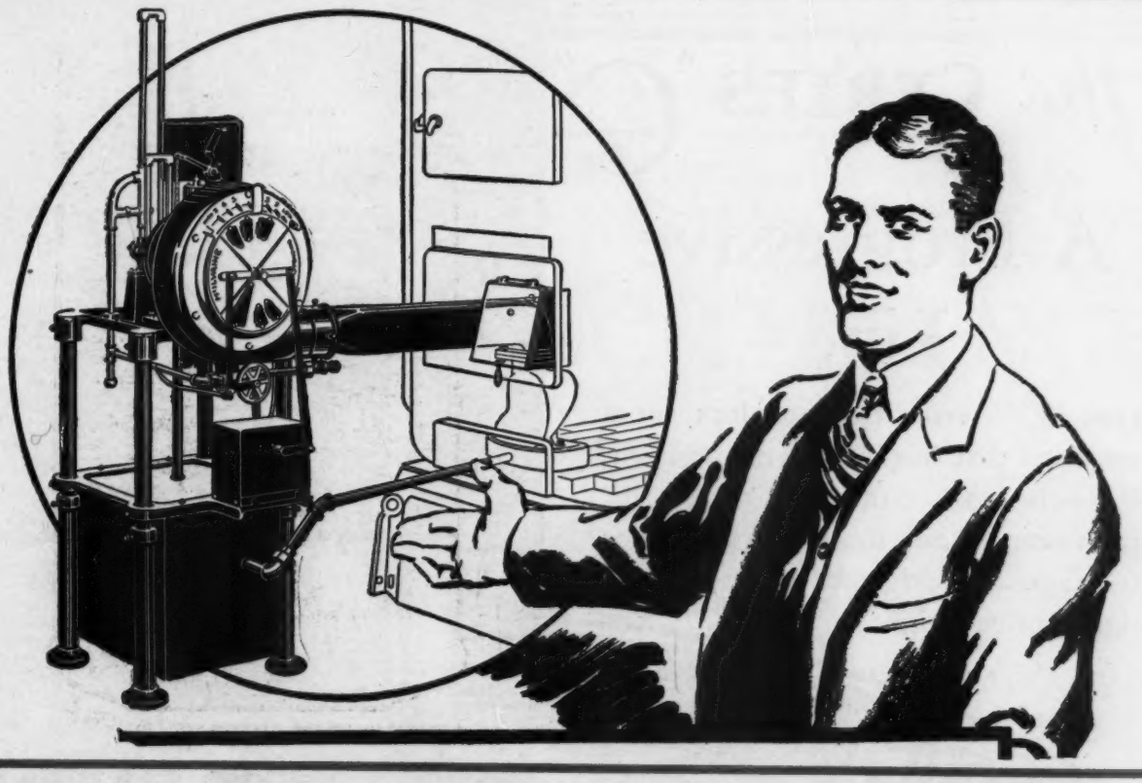
LANGENBERG MFG. CO.

4545 Euclid Avenue St. Louis, Mo.

N427

1888—42 YEARS OF CONSTANT ADVANCE—1930

Say you saw it in AMERICAN ARTISAN—Thank you!



Many Warm-Air Furnace Dealers Are Increasing Their Sales and Profits

by selling McIlvaine Oil Burners. They realize the value of the McIlvaine Sales Franchise, and that every warm-air installation makes a "live" prospect for a McIlvaine Burner because it is the ideal installation for warm-air furnaces, and the public is demanding the comfort, economy and convenience of Oil Heat. Are you overlooking this unusual opportunity of making Double Sales and Double Profits?

The McILVAINE is scientifically correct for warm air furnace installations. It is quiet and clean. No cracking of furnace firepots. No opening of furnace joints. Its continuous flame, mechanical draft and graduated control insure continuous warm-air circulation, with the highest efficiency---greatest economy---freedom from odors and trouble.

The McILVAINE is listed as standard by the Underwriters. The only flame is the oil flame. There is no gas pilot to blow out---no electric spark to fail---no intricate starting and stopping devices to get out of order---no danger from delayed ignition. There is no waste through alternately forcing the furnace, then cooling it off again.

McIlvaine Oil Burners (since 1924) in hundreds of homes, are giving perfect satisfaction in all types of warm-air furnaces, steam and vapor boilers and hot water heating systems. They have demonstrated their dependability, economy and efficiency in actual service.

Write for Descriptive Literature and Complete Information

Find Out If Your Territory Is Still Open.

McIlvaine Burner Corporation

747 Custer Avenue, Dept. A, Evanston, Illinois

Mention AMERICAN ARTISAN in your reply—Thank you!

The SERIES "C"

A Progressive Line

Our "C" Series furnace has set a standard that has not been surpassed. It includes a combination of improvements not found in any other furnace — designed right, made right, priced right.

MONCRIEF FURNACES

See Our January Advertisement for All the Particulars

THE NEW MONCRIEF *Steel Furnace*

Presents features that furnace men have been looking for and will thoroughly appreciate.

THE HENRY FURNACE & FOUNDRY CO.

3471 E. 49th St. · Cleveland, O.

WE MANUFACTURE EVERYTHING USED ON A WARM AIR HEATING JOB

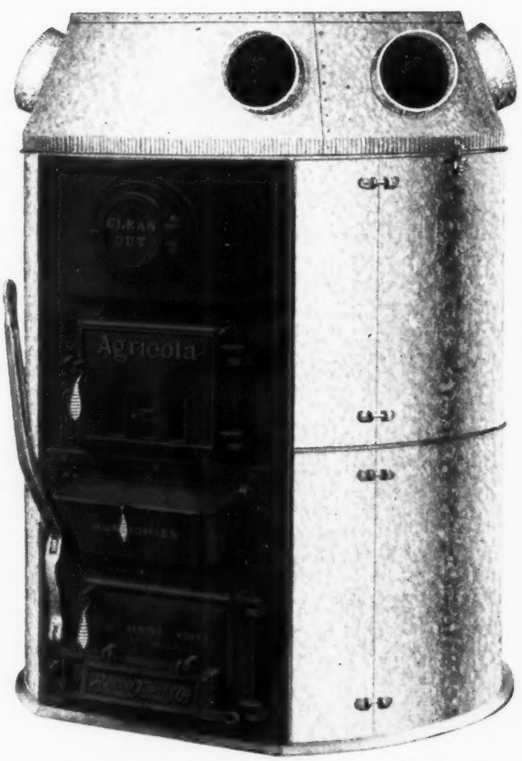
Put 1930 "Over Big" with Agricola Better FURNACES

1929 has been the biggest year in history for AGRICOLA Dealers!

The AGRICOLA Carload Plan has resulted in extra profits and satisfied customers for them.

Now is the time to join the AGRICOLA Carload Club for 1930. If you haven't the details concerning our "quantity business" proposition, write today.

THE AGRICOLA FURNACE CO., INC.
GADSDEN, ALABAMA
Sales Offices in Principal Cities. Quick Deliveries!



A modern, high quality furnace that can be sold at a competitive price

SPECIALISTS IN CARLOAD SHIPMENTS

MERCHANDISING
... COOPERATION
WILL CONTINUE TO BE
The

MIDLAND LINE

TRUESTEEL

DURING the months of November and December, Midland Executives, meaning the heads of the Production, Sales and Advertising Departments, have been analyzing the necessary methods to make selling for Midland dealers easier and more profitable. Test Plans have been made in various localities. 1930 will be a banner year and will give the Midland dealers greater cooperation and merchandising plans than the furnace industry has ever heard of or imagined before. The Midland plans will sell for you. All forms of advertising, all forms of better and approved sales methods will be involved. A Midland dealer will be an active and important part of the great Midland Institution.

If you feel that you can improve the progress you are making or you have not succeeded in arranging for a riveted and calked steel furnace representation, then write today and let us tell you all about the "Cleaner Heat" series and of the sales and promotional methods which are yours for the asking.

MIDLAND FURNACE COMPANY
COLUMBUS, OHIO

WISE

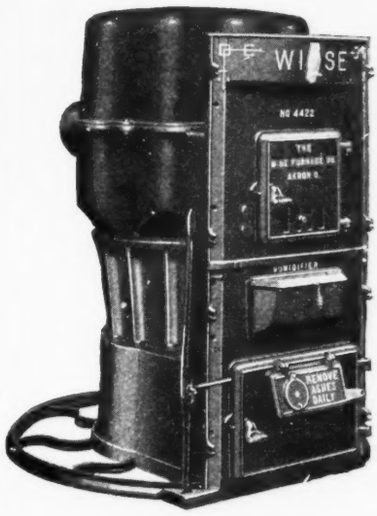
BESIDES all the ordinary up-to-date features the Wise 20 Series Return Flue Radiator Type Furnace boasts an exclusive Patented radiator construction which eliminates the objectionable dirt collecting and clean-out nuisance of the ordinary flue types. Feed chamber and top radiator are constructed to allow communication between them bringing the opening of the fire flues of the radiator directly into the feed chamber. Write for catalog which illustrates this feature in detail.

THE Wise 40 Series Open Dome is the highest grade furnace of this type made.

It has a new cellular one-piece firepot which supplies an evenly distributed air blast which provides complete combustion.

It has an Elbow Shaped Flue Collar on the inside of the radiator turned up so the heat within the radiator *must* follow the castings to the top before entering the flue. Notice the heavy castings, ribbed firepot, shaker handle and correct design. Our catalog No. 23 gives complete description—write for it today.

A distinctly high quality, complete line



AND the Wise Steel Furnace rounds out the Wise quality line.

It has a riveted and welded body of heavy steel with large radiating surfaces. It has all the good features found on the better furnaces. *Its exclusive feature is in the radiator which design eliminates the big weak spot in other steel furnaces.* Notice the cast iron soot box and clean-out at the bottom of the radiator.

Wise dealers have profited well and satisfied their customers with Wise furnaces for over thirty-seven years.

Progressive dealers in open territories can secure valuable exclusive agency rights — ask about it now.

THE WISE FURNACE CO., AKRON, OHIO

FURNACES

The FLORENCE for finer features

POSITIVELY SMOKELESS AND SOOTLESS!!

You can now successfully compete with the cleanliness question—The Florence is the cleanest warm air furnace on the market. No smoke and soot—all gases are *burned*—turned into heat that goes up the register pipes, not wasted up the flue. The patented Hot blast damper provides complete control of the fire by regulating the draft flow under and directly over the fire. Any dealer interested in increasing his income quickly and with less selling effort should write for complete details at once.

The Florence Is The Original Hot Blast

Fifty years ago, Christopher Emrich devised the Florence hot blast principle. Its application to furnaces is an outstanding feature of warm air heating. Ask any stove dealer about Florence Hot Blast Stoves and Parlor Circulators—the Florence Hot Blast is the only *real* hot blast.

ATTRACTIVE PROPOSITION FOR DEALERS

The Florence Will Make More Money For You

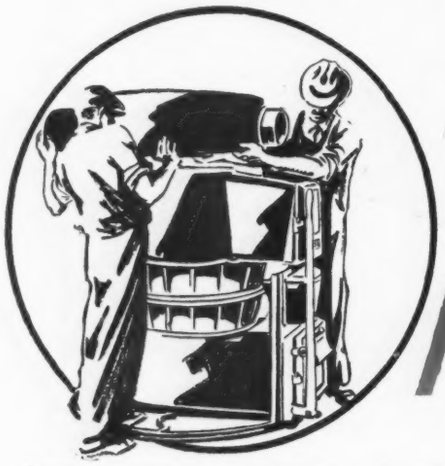
When you sell a Florence it stays sold—and every customer becomes a real booster. Our seven year guarantee protects you and your customers and our liberal proposition opens up new profit opportunities you never thought of. Write us for full details.

C. EMRICH CO.
ESTAB. 1861
COLUMBUS, OHIO

Manufacturers also of FLORENCE Heaters, Stoves and Ranges.

This emblem on every FLORENCE FURNACE identifies the genuine.

Showing the air intake opening for the combustion chamber.



One-Two-Three-Four
It's as Simple As That

MACHINE-LIKE rapidity and accuracy. Simplicity itself. That's the way a NIAGARA Warm Air Furnace assembles.

A minimum number of parts, and every one factory checked by master jigs to assure perfect fit and line-up.

Look inside the four little circles—one, two, three, four—it's as simple as that. The time and labor saved result in just one thing for you—a mighty important item: *extra profit.*

If you are not thoroughly familiar with all the new Niagara advantages it will pay you to get the facts. Write, we'll see that you get them.

THE FOREST CITY-WALWORTH RUN FOUNDRIES CO.

Member National Warm Air Heating Association

2500 West 27th St., Cleveland, O.

NIAGARA

WARM AIR HEATING SYSTEMS

Say you saw it in AMERICAN ARTISAN—Thank you!

The Greatest Trade Builder in the Furnace World

You are building a sound business when you sell and install XXth Century Hot Blast Furnaces.

Each XXth Century Furnace sold makes that customer another booster and another indirect salesman for you.

There are thousands upon thousands of owners who have used their XXth Century Furnaces continuously from 15 to 35 years with scarcely no outlay for repairs. These people constitute the *greatest trade building force in the warm air furnace world.*

That is why we say that a XXth Century dealer, in a community where this furnace has been sold for any length of time, has one of the most effective sales aids there are.

The XXth Century line for 1930 was never more complete—two grades of cast and one steel furnace, auxiliary gas burners and gas furnaces, Patented Overhead System of Heating, boilers and other heating units.

Surely if you are interested in a sound business producing, profit making line, the XXth Century Dealer Proposition for 1930 will more than interest you. Send the coupon today for complete information.

Reports from Radio

In a recent announcement over WADC, Akron, those home owners were asked to report who had used XXth Century Furnaces continuously for 25 years or longer in their homes.

Number Reporting	Date of Installation	Length of Service
2	1904	25 years
5	1903	26 "
4	1902	27 "
1 each	1901, 1899, '98, '97, '96	28 to 33 "
2	1895	34 "
2	1894	35 "

You should have read the very kindly comments of these long time users of XXth Century Furnaces. While this report was by no means complete, it gives the biggest reason why XXth Century Furnaces have been considered the *Standard of Fine Furnace Value for 35 years.*

The XXth Century Heating and Ventilating Company, Akron, Ohio

XX TH CENTURY HOT BLAST FURNACE

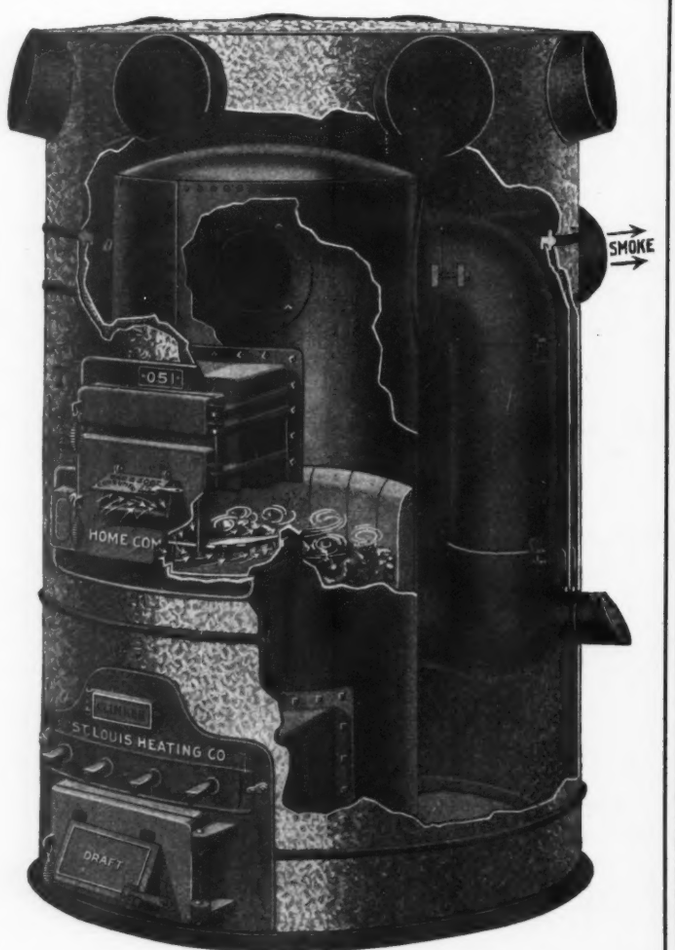
"Standard of Fine Furnace Value for 35 Years"

XXth Century H. & V. Co.,
Akron, Ohio

Without obligation, please provide us with your complete 1930 Dealer Proposition.

Name .....

Address .....



This is the quality that made steel furnaces popular

Designed and constructed for heating efficiency

Home Comfort

WARM AIR FURNACES

THE dealer who sells Home Comfort Steel Furnaces sells an up-to-date and high quality heating system with many years of customer satisfaction to its credit. The name Home Comfort is known throughout the country for superior steel furnace construction.

Its features are *heating features, economy features, enduring service features*—not merely new designs.

Home Comfort dealers build up year after year business—quality always tells and sells and brings reliable sound profits.

With the Home Comfort you can sell *proven design*—old fashioned high quality—*extra* heating surface plus the feature that brought the steel furnace in demand—*air tight clean heating* construction.

Write for our circular—"A Dozen Appeals to Reason"—it tells the whole story.

ST. LOUIS HEATING CO.

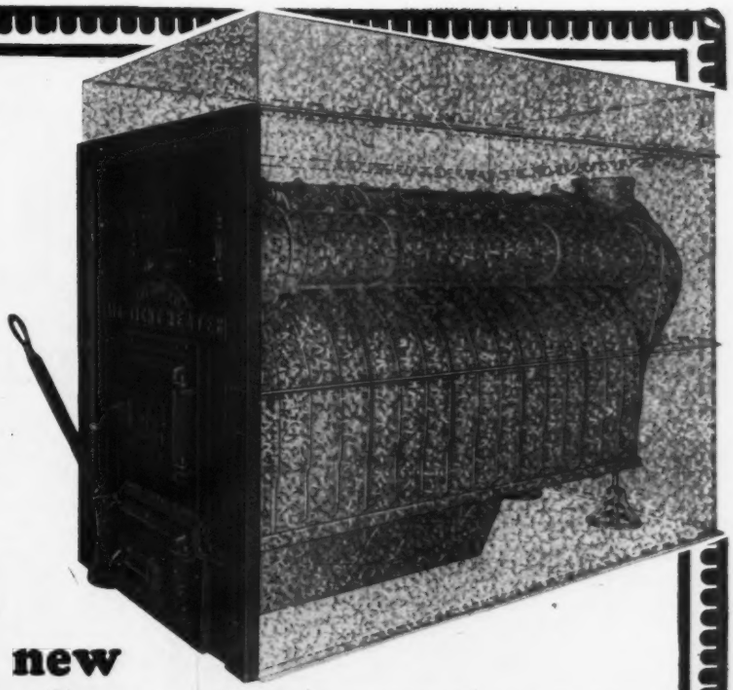
2901-11 Elliott Avenue - - - St. Louis, Mo.

Pittsburgh Distributor WAGENER BROS. *3605 East Street*

Sell the BIG jobs with the

AIRTIGHT

Horizontal Furnace



SECURE the school, church, country club and larger home heating contracts with this furnace. It enables you to do *modern* heating and ventilating and your profits are larger.

The Airtight is made in a range of sizes for every purpose. Heavy cast airtight construction thruout. Burns any fuel including *oil* and *gas*.

We are specialists in engineering the big jobs—*our expert engineering service is free.*

If you are going to get the big money sell this high grade moderately priced horizontal furnace. Let us tell you more about it *now*.

new GIBRALTAR FURNACES

THERE is over 37 years' experience behind the new Improved Gibraltar Furnaces. They contain the well known Gibraltar high quality and have many new Patented and exclusive features. Gibraltar dealers receive business getting cooperation—highest quality at fair prices and they make good profits.

Write today for this catalog No. 37

WE can not begin to illustrate or describe on this page the Gibraltar line or tell you all about the Airtight line of Horizontal Furnaces and why you can make better profits selling them. Our catalog No. 37 tells the whole story—get your copy *at once* and be set for bigger business in 1930.

P. H. MaGirl Foundry & Furnace Works

BLOOMINGTON ILLINOIS

The FARRIS WATERBASE FURNACE

guarantees 35 to 55% relative humidity

The Farris Waterbase principle has been in successful use in thousands of homes for many years

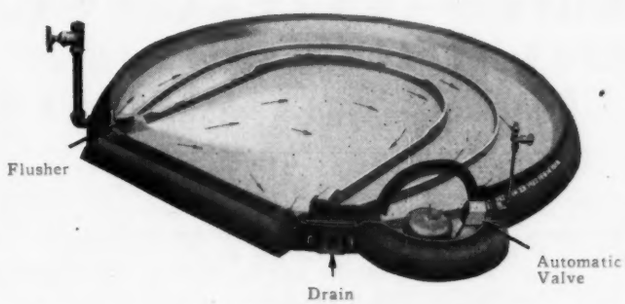
With this furnace you sell real *humidified* warm air heating

TO tell your customers that with warm air heating they get *humidified* heat is one thing—to be sure they *get it* is another. With the Farris Waterbase you can *be sure* they get real comfortable humidified warm air at all times. The Waterbase feature is an exclusive Patented Farris feature. It automatically controls the air conditioning unit which is built in the base of the furnace. It is easily flushed and drained. This feature provides cleaner as well as more healthful heating. The Farris Waterbase is the only furnace that will not stir up dust with Fan installation.

Folks want this *air conditioned* heating

This Automatic Humidifying and Air Cleaning feature fits the public desire. It means more sales and greater profits for progressive dealers who recognize the great sales advantage of *air conditioned warm air heating.*

The Farris is high quality in all respects—for many years it has featured self-cleaning construction—Feed Section and Ash Pit extending through front—ground air tight doors—smoke consumer—upright shaker—leakproof joints and many other up-to-the-minute points of superiority. Sell the Farris Waterbase—offer something different and better.



FARRIS FURNACE CO.

Established 1899

SPRINGFIELD, ILLINOIS

Send this coupon today

FARRIS FURNACE CO.,
Springfield, Illinois.

Gentlemen:

Send me your Dealers' Proposition and full information on the Farris Waterbase Furnace.

Name .....

Address .....

..... *A.A.*

Make it more prosperous with

RELIABLE RYBOLT FURNACES

The Sign of Heating Satisfaction

WITH the RYBOLT Franchise you can make more sales—increase your profits—satisfy your customers.

This is due to the fact that unusual manufacturing advantages enable us to produce improved, dependable, quality furnaces that can be sold at competitive prices.

Decide now to make 1930 a bigger and better year! Let us tell you how RYBOLT will help you to do it. Complete details of our attractive proposition will be sent upon request. Write—use the coupon!

THE RYBOLT HEATER CO.
Ashland, Ohio

Cincinnati **Indianapolis**

THE RYBOLT HEATER CO., Ashland, Ohio
Please send us the details of the RYBOLT 1930 proposition.

Name .....

Street .....

City..... State.....

"Old Wine in New Bottles"

LONDON Boiler Plate *Quality Plus* FURNACES

Cold Riveted and Welded—Smoke, Gas and Fume Tight!

Equipped with Grates and Radiators for Different Fuels

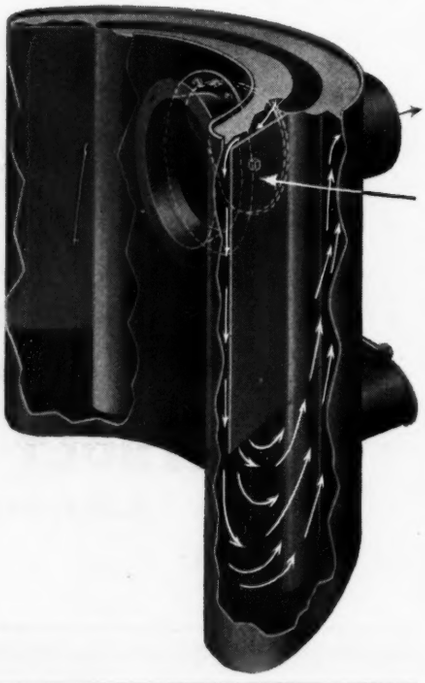
We Have Special Facilities for Fabricating Drums and Radiators For Manufacturers Who Wish To Make or Use Their Own Castings and Increase Their Sales

We Equip the "LONDON" with Either "Duplex Basket Dump" "Triangular" or "Draw-Center" GRATES and with RADIATORS for Soft or Hard Coal Coke or Oil

With Direct or Indirect Draft Damper

OUTSIDE OF CASING—ACCESSIBLE—EASILY REPLACED

"3 in 1" Hollow Center (Patented) Radiator
An Exclusive Feature of the "LONDON"
Saves Fuel—Puts "PEP" in Circulation!



Handle a Furnace that Is Adapted to ALL FUELS
***Our Agency Would Be Your Best Asset in* 1930**

We Do Not Maintain a Large Sales Force (at YOUR Expense), Therefore Invite Correspondence. Our Prices and Terms Are Right.

WRITE *TODAY* FOR PROPOSITION

THE LONDON FURNACE COMPANY

LONDON, OHIO

THOMAS W. PEARSON,
SALES MANAGER

BRILLION FURNACES

Will Make 1930 Produce Profitable Customer Building Business for You

THE progressive dealer has resolved that he is through with trying to make money and build business with a *low grade* furnace. He has found out that selling on a *price basis* takes more time and is less profitable than selling *fewer but better warm air heating installations* using a *good* furnace.

The progressive dealer knows too that what his customers want is *good heating* and that the furnace must have the quality to stand up under years of service and must be modern in design and construction.

The Brillion meets all of these qualifications.

NOTICE the largeness of the water pan—the oversize doors—the convenient shaker handle—base ring and ash pit base in one piece—corrugated fire pot and combustion and all around sturdy construction. It's the kind of a furnace that you and your customers will value at much more than its *cost*.

Our low manufacturing overhead and special selling policy make it possible for the Brillion to be high in quality and yet low in price.

Let the Brillion build customers satisfaction and larger profits for you in 1930.

Get More Repair and New Warm Air Heating Business with the BRILLION Furnace Cleaner

One of the outstanding tried and proven methods of getting more repair and new furnace heating business is through the operation of *furnace cleaning*. The cleaning profits alone mean extra money and the Brillion with its exceptionally powerful vacuum, easy portability, and low cost make it ideal for you to own and operate. The Brillion Cleaner is durably constructed of cast aluminum. The flexible metal hose is adaptable for all styles and sizes of furnaces and boilers. It operates from any light socket and one man can handle any cleaning job.

Take the Brillion Cleaner with you on every call—canvass your territory for cleaning jobs and watch your sales and profits increase.

BRILLION FURNACE COMPANY
200-300 Park Ave. Brillion, Wis. 17 N. La Salle St.
BRILLION, WISCONSIN

A.A.
BRILLION FURNACE CO.
Gentlemen:—
Convince me that Brillion Furnaces are high grade and sell at a price unusually low for such quality.

Name .....
Address .....
City ..... *State* .....

Mention AMERICAN ARTISAN in your reply—Thank you!

6 OUT OF 10

Furnace sales are waiting to be made!

60% percent of all houses and buildings are prospects for furnaces today, according to a market survey recently completed. Of the 40% now equipped with furnaces, many require replacement. What a market!

Few businesses face so good an opportunity, anywhere. Realize on it! Prepare to get and keep the cream of this market, with Oakland Warm Air Furnaces.

The Oakland Foundry Company has been making furnaces for 25 years. Today a nation-wide distribution testifies to our reputation for highest quality. Square dealing, a reliable product, and a strong dealer-support policy have put Oakland Furnaces in a commanding position.

Oakland Furnaces feature larger grates with roller bearings for easier operation; heavier castings; straight side fire pot; lever handle to shake down grate; longer life; less trouble—every installation gives satisfaction.

And the prices are right!

Address a postal card or letter to us today for complete information and discounts.

THE ROUND TYPE OAKLAND FURNACE
sells well and gives unexcelled service.

THE OPEN DOME TYPE OAKLAND FURNACE
has friends everywhere.

THE OAKLAND FOUNDRY CO.

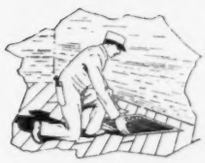
Dept. 1P
BELLEVILLE, ILLINOIS

OAKLAND *WARM AIR FURNACES*

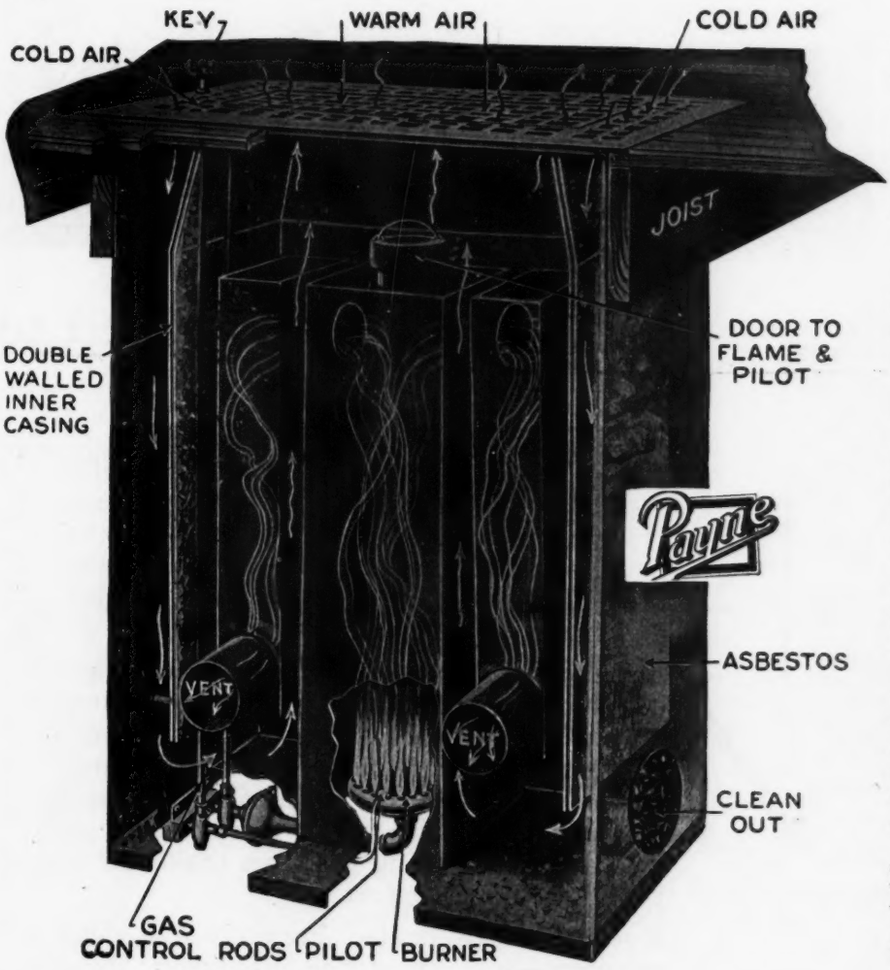
Mention AMERICAN ARTISAN in your reply—Thank you!

Why Standardize on everything but the HEATING SYSTEM?

Architects find that the heating installation is more easily planned . . . and the owner assured better heating results . . . when the specifications read "Payne Gas Furnaces."



HeatingContractors spend less time on the job and have fewer "free service" calls to make after they have installed a Payne Gas Furnace.



Payne Gas Furnaces

give every owner maximum heating luxury and economy!

IN modest bungalows and spacious mansions, in offices, shops and stores, in schools, hospitals and all public buildings, in factories and work shops in hundreds of different cities throughout the country, Payne Gas Furnaces are coming more and more into popular use . . . more and more popular with owner, architect and contractor . . . more and more profitable to the heating specialist who has the Payne Furnace Franchise! Made by the world's largest exclusive gas furnace manufacturers over a period of more than 14 years, Payne Furnaces embody every refinement, every modern convenience, that the public is insisting upon today.

Just Out! New Payne Catalog

Architects, contractors and heating engineers are invited to write for a copy of this new book which gives complete information on every Payne Gas Furnace type and size.

Payne Engineering Service

Architects, Building Contractors and Heating Engineers are invited to put their troublesome warm air heating problems up to the Payne Engineers. Send floor plans and full details of heating requirements. No matter how large or how small your installation may be, the Payne Furnace & Supply Co., Inc., is ready to cooperate with you.

Payne Heat

Factory Units
Unit Furnaces
Floor Furnaces
Central Furnaces
Pipeless Wall Units
Industrial Installations

Dealers—Write for Franchise!

In every important town and city there is a heating specialist who is the recognized *leader* in his community. We want that man to write us for details of the Payne Furnace Franchise. We have a definite plan of co-operation for exclusive Payne Furnace Dealers that takes you out of competition with ordinary propositions. Write today, giving full particulars regarding your territory.

Payne Furnace & Supply Co., Inc.

BEVERLY HILLS, CALIFORNIA

THERE IS A "PAYNE HEAT" SYSTEM FOR EVERY BUILDING AND ANY CLIMATE

44 JOBBERS

CARRYING STOCKS IN

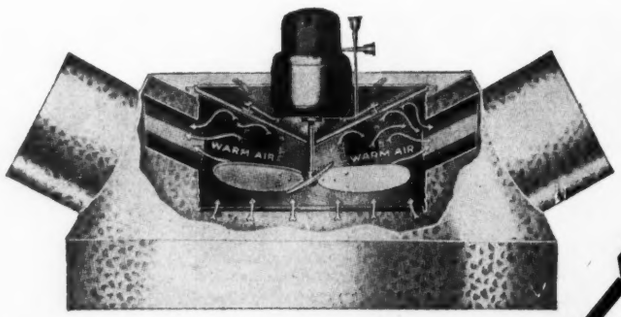
68

CITIES IN THE UNITED STATES AND CANADA

BAKER-PAYNE-VOYE CO. ..... Boston, Mass.
THE BECKWITH CO. ..... Dowagiac, Mich.
BERGSTROM MFG. CO. ..... Neenah, Wisconsin
CARR SUPPLY CO. ... Chicago, Ill.
DAYTON-HESSLER CO. ..... Syracuse, N. Y.
DEMMLER BROS. CO. ..... Pittsburgh, Pa.
DOWAGIAC STEEL FURNACE CO. ..... Dowagiac, Mich.
FARRIS FURNACE CO. .... Springfield, Ill.
C. L. FEATHERSTONE FURNACE CO. ..... Spokane, Wash.
FOLLANSBEE BROTHERS CO., Pittsburgh, Rochester, Cincinnati, Memphis, Detroit, Indianapolis, Milwaukee, Louisville.
FLORAL CITY HEATER CO., Monroe, Mich.
FOX FURNACE CO. ..... Elyria, Ohio
HEATING & SUPPLY CO., Pittsburgh, Pa.
HENRY FURNACE & FOUNDRY CO., Cleveland, O.; Indianapolis, Ind.; Pittsburgh, Pa.
M. K. HOKE ESTATE ..... Manheim, Pa.
HOMER FURNACE CO. Coldwater, Mich.
IDEAL FURNACE CO. ..... Detroit, Mich.
INTERNATIONAL HEATER CO., Utica, Chicago, Cleveland, Nashua, New Hampshire, Longbranch, N. J.
KALAMAZOO STOVE CO., Kalamazoo, Mich.
KELLEY-HOW-THOMSON CO. ..... Duluth, Minn.
KELSEY HEATING CO. Syracuse, N. Y.
W. E. LAMNECK CO. ..... Columbus, Ohio
LENNOX FURNACE CO., Inc., Syracuse, N.Y.
LENNOX FURNACE CO. OF CANADA, Ltd., Toronto, Ontario & Winnipeg, Man.
THE MAJESTIC CO. ..... Huntington, Ind.
MARSHALL-WELLS CO., Duluth, Minn.; Billings, Mont.; Great Falls, Mont.
MAY-FIEBEGER CO., Newark, O.; Akron, O.

A. Y. McDONALD MFG. CO. ..... Omaha, Nebr.

MIDLAND FURNACE CO., Columbus, Ohio
MONCRIEF FURNACE CO. .... Atlanta, Ga.
NEW IDEA FURNACES, LTD., ... Ingersoll, Ont., Can.
THE OHIO SHEET METAL & MFG. CO. ..... Dayton, Ohio
J. M. & L. A. OSBORN CO. ..... Cleveland, O.; Buffalo, N. Y.
PEASE FOUNDRY CO., Ltd. ..... Toronto, Ontario, Canada
PENINSULAR STOVE CO. ... Detroit, Mich.
PORTLAND STOVE FOUNDRY CO. ..... Portland, Maine
QUICK FURNACE & SUPPLY CO. ..... Des Moines, Iowa
RAVENNA FURNACE & HEATING CO. ..... Ravenna, Ohio
RICHARDSON & BOYNTON CO., New York, Chicago, Boston, Philadelphia, Buffalo, Minneapolis, Newark, N. J.
THE SCHILL BROS. CO. ..... Crestline, O.
SUCCESS HEATER MFG. CO. ..... Des Moines, Iowa
WESTERN STEEL PRODUCTS CO. ..... Duluth, Minn.
GEO. F. WHEELOCK CO., Birmi'gh'm, Ala.
WISE FURNACE CO. ..... Akron, Ohio



ROBINSON
Heat Distributor

Still another Jobber added to the ever growing list

EVERY day the sale of this highly efficient furnace heat distributor is increasing by leaps and bounds. Progressive dealers are fast learning that the Robinson Heat Distributor does the job easier, better and with less cost to the home owner.

Once you install one you'll see how much easier it is to sell more warm air heating jobs with the Robinson Heat Distributor. You'll notice that folks think more about the superiority of this form of heating and you'll learn that by giving this better type of warm air heating you can make extra profits with little effort.

Every furnace heated home is a logical prospect—just *show* the Robinson Heat Distributor and you'll make sales.

Write today to the nearest Robinson Heat Distributor Jobber on the accompanying list for details.

Ask for full information, circulars, prices and engineering data sheets.

Manufactured by

The A. H. ROBINSON Company

Massillon, Ohio

THE FOOTSTEPS of successful dealers

—lead to better business with this furnace

Send the coupon today

THE most successful dealers sell furnaces that give entire satisfaction.

They have stepped around and learned that they must sell furnaces that have a special appeal to the public. They have saved many mental steps by realizing that the furnaces they sell *must* represent exceptional value and sell at a popular price.

Their footsteps have eventually brought them to the Dowagiac Seamless Steel Furnace.

You can save miles of mental shoeleather by following in the tracks of these successful dealers.

IN spite of the high quality and many exclusive features of the Dowagiac Seamless Steel Furnace its price is much less than you would expect it to be.

The reason is simple—we employ no high salaried non-productive executives—all unnecessary selling and merchandising expenses are eliminated from the price.

It's easy to take the few necessary steps to have us prove our claims. Step in and look over the Dowagiac Seamless Steel Furnace NOW by sending the coupon.

DOWAGIAC STEEL FURNACE CO.
DOWAGIAC, MICH.

DOWAGIAC STEEL FURNACE COMPANY,
Dowagiac, Mich.

I'm interested in walking to bank with more profits. Send me literature which describes and illustrates the Dowagiac Seamless Steel Furnace in detail.

Name .....
Address .....
Town ..... *State*.....

EXCELSIOR AGAIN LEADS!

NOT only in the invention of new items of value to the trade as announced from time to time but also in the production of quality goods such as manufactured for many years.

As manufacturers of everything necessary for the installation of complete Warm Air Heating plants, with wide distribution and increased production facilities your wants can be quickly supplied from one source.

THE EXCELSIOR ACE

"It Speaks for Itself"

A FEW EXCELSIOR SPECIALTIES

WE appreciate the continued loyalty of thousands of furnace dealers throughout the country. It will always be our earnest endeavor to continue to supply the finest line of Heating Specialties on the market at the lowest prices, quality considered.

May we extend to you all the compliments of the season with our sincere wish for your prosperity during 1930.

"NO EXTRA CHARGE FOR EXCELSIOR QUALITY"

THE EXCELSIOR STEEL FURNACE CO.

118 South Clinton Street Chicago, Ill.

To close more warm air heating contracts you need a furnace that is SMOKELESS

FEATURING the Famous Three-Way Air Blast construction of the Ath-A-Nor furnace which provides *smokeless* operation will stimulate your sales.

You show your prospects not just a makeshift appliance but a *different proven furnace construction* that positively gets more heat out of the fuel because it produces complete combustion.

This is a Patented exclusive feature—a talking and selling point no other furnace has.

THE PIPE AND ATH-A-NOR PIPELESS FURNACE

Folks would prefer the Ath-A-Nor for its other quality features but with this feature they will demand it

It means dollars saved and cleaner homes. It means more efficiency and more powerful and quicker heating.

Give your customers this added value and make more sales and extra profit.

You can sell the Ath-A-Nor for more yet its cost is no greater than what you pay for ordinary furnaces.

The May-Fiebeger line includes several styles and a complete range of sizes in both Cast and Steel furnaces

NO matter what your trade desires in the way of quality furnaces at reasonable prices you can meet the requirements with the May-Fiebeger line.

Open Dome and Top Radiator styles of Cast Furnaces and a new size, 20 inch firepot in the Solid Comfort line.

The May-Fiebeger Newark Steel Furnace is both riveted and welded. It's a steel furnace worthy of the line.

The May-Fiebeger line made profits for dealers last year and for many years past. Put it to work for you in 1930.

Write today for catalog showing and describing this well known line of furnaces—May-Fiebeger prices and service will help you make better profits.

The May-Fiebeger Company

Newark, Ohio

TELL 'EM ALL ABOUT IT AND YOU'LL SELL BETTER JOBS

THIS is the story of a sad but enlightening experience which befell a certain furnace dealer who had always rated himself as a pretty keen business man. It seems that this dealer had recently installed furnace jobs for two men in the same neighborhood. One fellow, whom we'll call Jones, wasn't considered particularly prosperous and the new home he was building wasn't pretentious. The other chap, who'll be designated as Brown, was quite wealthy and was putting up a pretty big house.

He Sized 'em Up

Well this furnace dealer always figured that he could size up a man and tell just about what class of a job to try to sell him. So when Jones asked him about a furnace installation for his home, the dealer decided for himself what he thought Jones would be interested in, and sold it to him. It was just another furnace installation.

Then when Brown, with his big house, came along, the dealer pitched right in hammer and tongs and sold him a wonderful air conditioning system—a first quality job and a very profitable one. Which was as it should be.

Now, off hand, you'd think this dealer had done a good sensible job of selling to both parties. But there's some more to the story.

Now for the Sad Scene

A few months after both jobs were done and paid for, Jones, the fellow who got the "furnace installation," made another call on the dealer.

"Say, what kind of a deal did you put over on me," said Jones. "I was over at Brown's house the other night and saw that system you put in for him. How come you didn't tell me about that? Did you think it was too good for me? I enjoy comfort as much as anyone and I'm just as much concerned about the comfort of my family as Brown is. I'd gladly have bought a system like you sold Brown, but apparently you didn't even think it worth while to tell me about it. Maybe you thought it was too high priced for me, yet from what Brown tells me about his fuel expense it would have been just as cheap in the end as the ordinary job you sold to me. There's nothing I can do about it now, but I want you to know that here's one man you'll never get another job from."

Master Majestic Down Draft Air Conditioning Unit—forced warm air, filtered and humidified. All pipes taken off the top.

There you are. Because this dealer tried to decide for himself about what Brown would pay for a heating system, he didn't even go to the trouble of *explaining* a complete warm air conditioning system such as he could supply with the Master Majestic Down Draft. He didn't even *tell* him what complete heating satisfaction this system could give. He didn't even give Jones an opportunity to *want* it. Naturally he lost a friend and a booster.

It's the Least You Can Do

That sort of thing is happening a lot nowadays because some dealers won't realize that the American people want the best and will buy it if you will give them a chance. The very least a good furnace dealer can do is to let his customers *know* about the modern warm air heating methods—the complete humidifying, filtering, air conditioning system. If he'll do just that much he will sell more and better jobs and his profits will climb up on the perch where they should be.

We would like to tell you how we are helping dealers to sell quality jobs—completely modern systems—and how we are educating the public to want and expect this kind of heating satisfaction. We'll be glad to give you the whole story. It will be interesting and valuable to you, no matter what kind of furnaces you are selling. Just address a postal card or letter to The Majestic Company, Huntington, Indiana, and say "Tell me how you are promoting the sale of quality warm air heating systems." Or mail the coupon below. That's all. You won't be obligated.

MAIL THIS TODAY

The Majestic Company
Huntington, Indiana

Tell us about Majestic Heating Systems and how you help your dealers make sales.

Name.....

Firm.....

Street.....

City and State.....

THESE BETTER FITTINGS WILL SAVE YOU TIME AND MONEY

They simplify stock-keeping... if you standardize on Lamnecks, you need fewer items in stock. Lamneck 24-hour service always available when you need more fittings than you can supply from your stock.

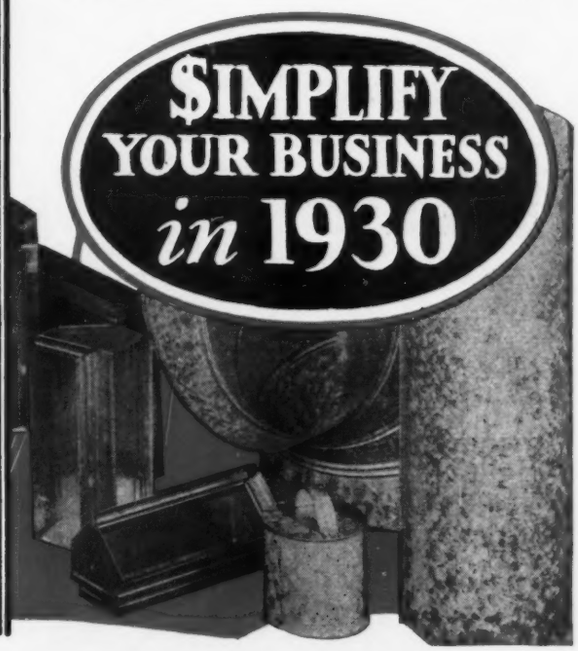
They make it easy to figure cost accurately... no uncertain labor, no lost time to allow for.

They simplify installation... because they FIT. Due to Lamneck's patented construction they make a rigid workmanlike job without excessive strapping and bracing.

THE W. E. LAMNECK COMPANY
COLUMBUS OHIO

W. A. Pipe
Smoke Pipe
Elbows
Angles
Pulleys
Damper Quadrants
Wall Stack Fittings
Lamneck Improved Registers
Wood Faces
Cast Dampers
Regulator Chain
Asbestos Paper
Aircell Paper
Stove Pipe
Furnace Cement
Sheet Metal Screws
Damper Clips
Dry Paste

Have You Our Catalog?



LAMNECK SIMPLIFIED PIPE AND FITTINGS

Note: Our patented LAMEDGE joint makes Lamneck round tin pipe fit better and gives it the rigidity of a much heavier gauge. Lamneck patented double wall pipe can be fastened quickly without nailing or otherwise puncturing the pipe. Use the coupon to secure a sample of either or both.

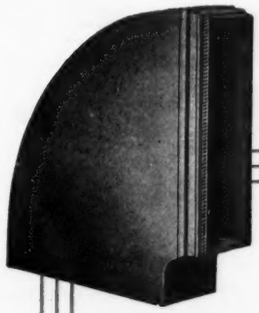
THE W. E. LAMNECK CO., Columbus, Ohio

Gentlemen: Kindly send your 1930 catalog. Also mail, without obligation, sample of pipe with Lamedge joint ☐, sample of your double wall pipe ☐.

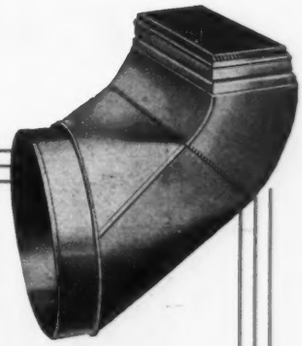
Name _____

Address _____

Mention AMERICAN ARTISAN in your reply—Thank you!



Put this better pipe to work for you now—it saves time and money—it makes sure of proper air delivery

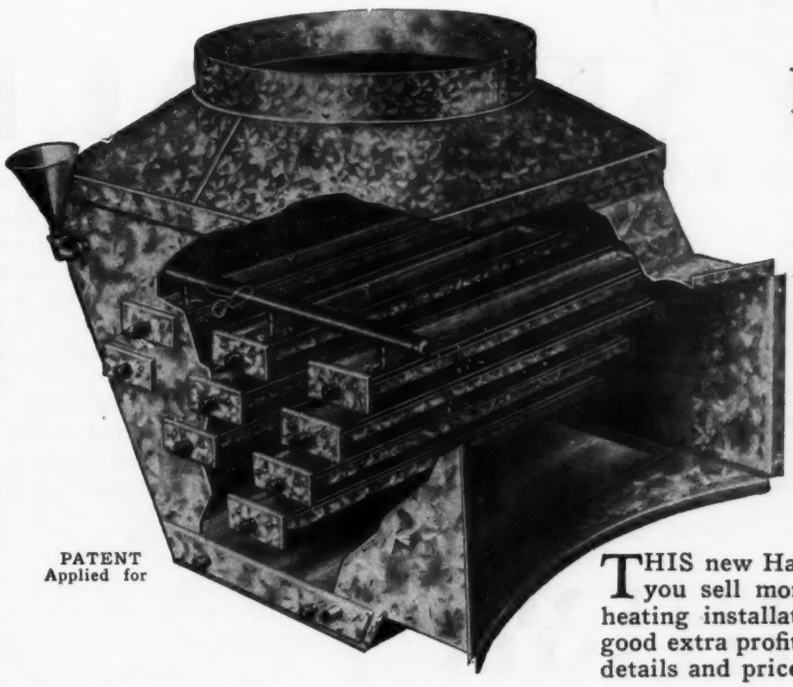


HANDY PIPE

and Fittings

are designed to provide greater heating efficiency with less fuel cost—notice all curved angles. With HANDY PIPE there is

No Friction



PATENT
Applied for

The
HANDY
3 in 1
COLD AIR SHOE

NO more work to install than an ordinary cold air shoe — costs but little more and besides an efficient *cold air shoe* it is an *Air Cleaner* and *Humidifier.*

THIS new Handy invention will help you sell more and better warm air heating installations. It will give you good extra profits. Write today for full details and prices.

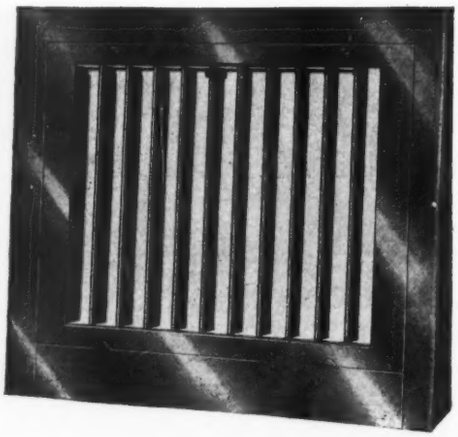
YOU can secure all warm air heating supplies from the home of Handy Pipe and Fittings. We carry large stocks of everything you need for a warm air furnace installation and our service is prompt and reliable. You should have the Handy catalog handy at all times.

Write for your copy today.

F. MEYER & BRO. CO.
PEORIA, ILLINOIS

Order through your Jobber

TO MATCH ATTRACTIVE INTERIORS-



THE new homes with modernistic interior decorations call for registers that are distinctive and attractive—registers that harmonize so well they become part of a pleasing room design.

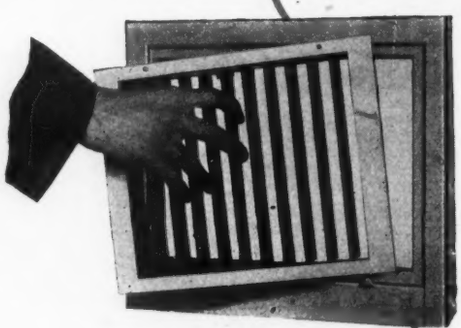
The out-of-the-ordinary simple and neat design of the New Standard meets the demands. Besides its easy-to-look-at design it is the ultimate in practical utility. It was fashioned from the ideals and specifications expressed in the Standard Code for which it is named.

Open

NEW STANDARD

STEEL BASEBOARD REGISTER

THE wafer thin shutters allow maximum air capacity and the operation is so simple and effective that positive air control is possible. Open or closed the New Standard presents a neat, pleasing appearance and it can be had in all colors to match modern interior decorating.



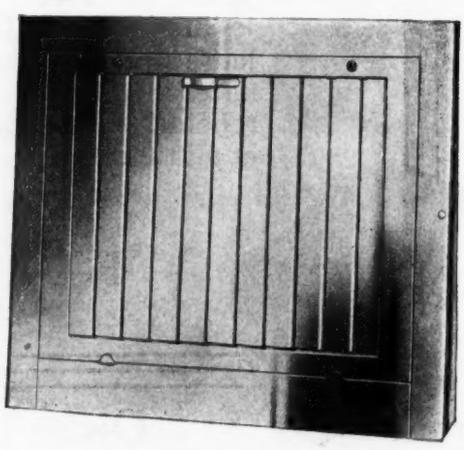
THE face of the New Standard is secured by two screw heads and is easily detachable. Shutters are of polished steel and finished same as register. It is the easiest register to keep clean. Constructed of the highest grade durable material and made in all sizes to conform to the Standard Code.

Closed

IT WILL HELP YOU CLOSE MORE SALES

JUST as you prefer a pleasing design in the things you buy so your customers will prefer this different and modern register. It will help to make sales—it will bring extra profits from replacements on old jobs. Dealers everywhere say it has made a big hit.

It costs no more but like anything modern it will bring you a better price. Write for the New Standard catalog today.



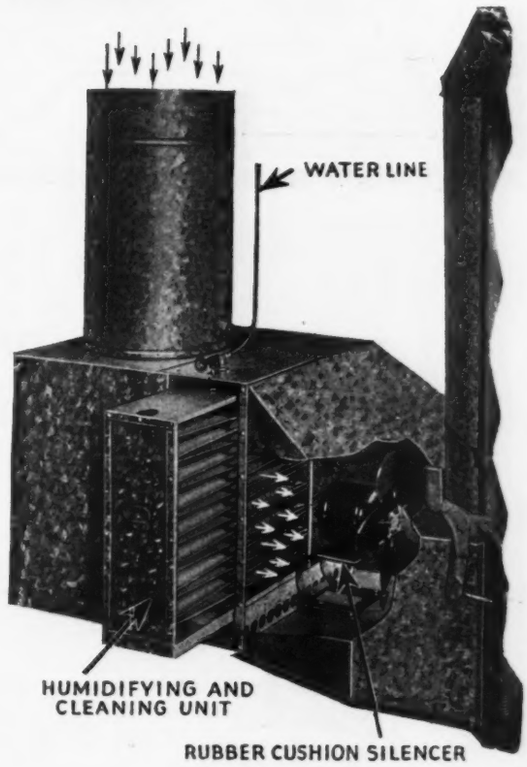
WATERLOO REGISTER CO.
Waterloo, Iowa

Seattle, Wash., Office: 2211 1st Ave.
Los Angeles, Cal., Office: 822 Clanton St.

KORECTAIRE

The Unit that

HUMIDIFIES — CLEANS THE AIR — *and provides* FORCED AIR HEATING — *all in one*



With the KORECTAIRE you can sell every large or small home, church or school, *fully conditioned* warm air heating

IT'S simple, practical, foolproof and highly efficient. Korectaire humidifies the air—the patented design automatically delivers the proper amount of humidity. The humidifying plates are covered with moisture-spreading material which is always heavily saturated. There is 20 feet of humidifying surface and 40 feet of dust collecting surface in Korectaire.

The air readily absorbs the correct amount of humidity.

Korectaire cleans the air—the humidifying plates extract dirt, lint and all foreign matter without retarding air flow.

Korectaire forces the air. The fan is highly efficient and mounted on spring frame and sponge rubber plates to eliminate noise and vibration. Motor is waterproof, trouble-free, sturdy, powerful and equipped with durable bronze self oiling bearings.

The cost is small----the profit large----send the coupon

KORECTAIRE is economical to buy and economical to operate. This *new* machine gives you just what you need to *sell better* and *more profitable* warm air heating installations. It is adaptable to any furnace and is easy to install.

Open your prospects' eyes and pocketbooks with Korectaire. Show them that with Korectaire and your installation of a good warm air heating system they will get the *best* form of healthful heating. Show the Gorectaire now—extra satisfaction to *old* and *new* customers — extra profits for you.

WATT MFG. COMPANY
STERLING, ILL.

WATT
MFG. CO.
Sterling, Ill.

Gentlemen:

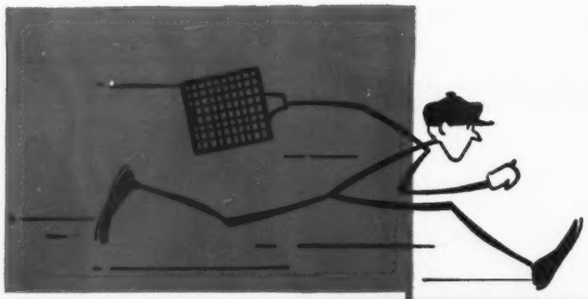
Send us full details and prices on KORECTAIRE.

Name .....

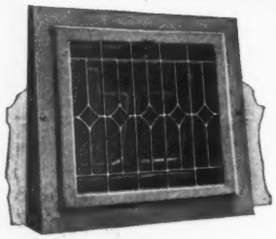
Address .....

.....

☐ Dealer ☐ Jobber ☐ Furnace Manufacturer

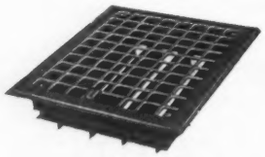


SPEEDY SERVICE

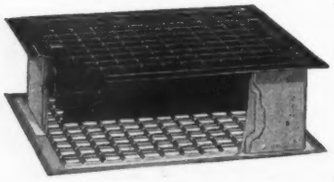


Baseboard Registers
Single Valve—Wrought Steel

Self Straightening
Wall Registers



Style S. F.
Wrought Steel Registers
Multiple Valves



Adjustable
Ceiling Ventilators
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Further, you will find that every order is given individual attention, carefully packed and shipped promptly.

It is this combination of superior product and better service that is causing furnace men more and more to turn to Independent for Registers, Ventilators and Grilles.

"Fabrikated" Cold Air Faces

A real improvement in design and construction that allows a greater volume of air to pass through a smaller floor opening. Strong, well built, good looking; any size, any finish.

INDEPENDENT REGISTER & MFG. CO.
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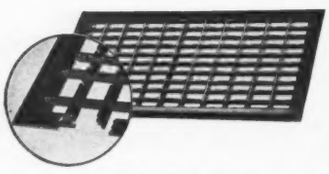

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A-C AUTOMATIC HEAT BOOSTER

EVERYTHING

your customer wants in a good furnace fan at a price below competition--

1- *Automatic Operation;*
2- *Perfect Circulation;*
3- *Simple - Trouble - Free;*
4- *Quiet - No Vibration;*
5- *Costs Less than any other similar fan - - -*

SIMPLE INSTALLATION INSURES QUICK, EASY PROFIT

Installation is simple and easy—and at such small labor cost that a good, substantial profit is insured on every job, large or small. A few lengths of pipe and elbows are all that is necessary. There are no louvres—no back-pressure—and NO INTERFERENCE WITH GRAVITY OPERATION. May be installed on jobs with any number of cold air returns and works effectively with any type of warm air plant—coal, oil or gas. Shipped ready to install—Fan Unit and Automatic Control.

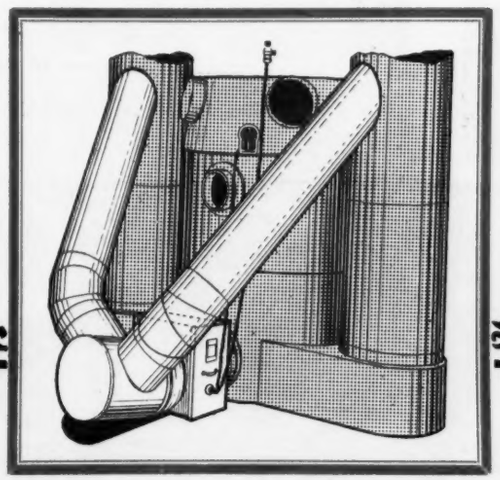
GET YOUR SAMPLES NOW—ORDER FROM YOUR JOBBER

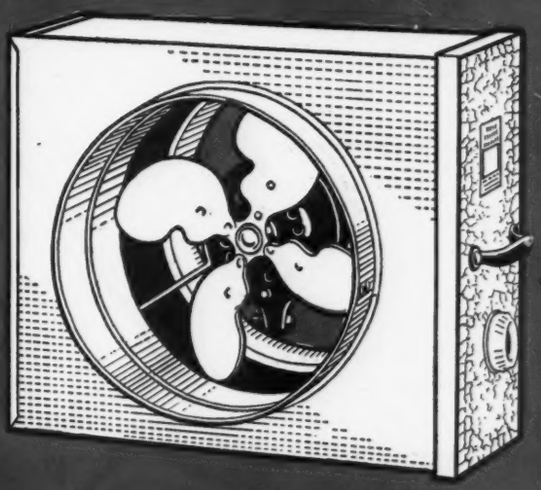
If your jobber cannot supply you send coupon to us direct today. We will send complete information by return mail. Use the coupon.

A-C Manufacturing Co.

417 Sherman St.---Pontiac, Ill.

Thermostatic Control Warm Air Furnace Fan Licensed Under Re. Pat. No. 15531.





No. 9 Size Unit with 10-inch Outlets, designed for average small home — Mercury Control, Heat Booster, Fan and Unit with Emerson Motor—All ready to install, priced

COMPLETE To The Dealer

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INCLUDES AUTOMATIC CONTROL

A-C MFG. CO., 417 SHERMAN ST., PONTIAC, ILL.
Send me complete details.

Name .....

Street ..... *Town*..... *State*.....

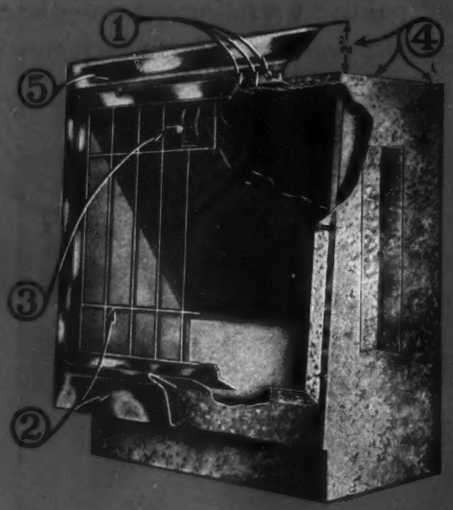
JOBBER'S NAME .....

Mention AMERICAN ARTISAN in your reply—Thank you!

Guarantee

Here's How—

With The Only Guaranteed NO STREAK Register.



And Why—

Because it is only possible with the Patented Expanding Joint of register front to register box on the NO STREAK Register.

NO STREAK

Cleaner Heating

You Owe Yourself the value of our 1930 Proposition.

ROCK ISLAND REGISTER CO.

2435 5th Avenue - - - - - - - - - - - - ROCK ISLAND, ILL.

Gentlemen: Send me your 1930 Proposition and Catalog

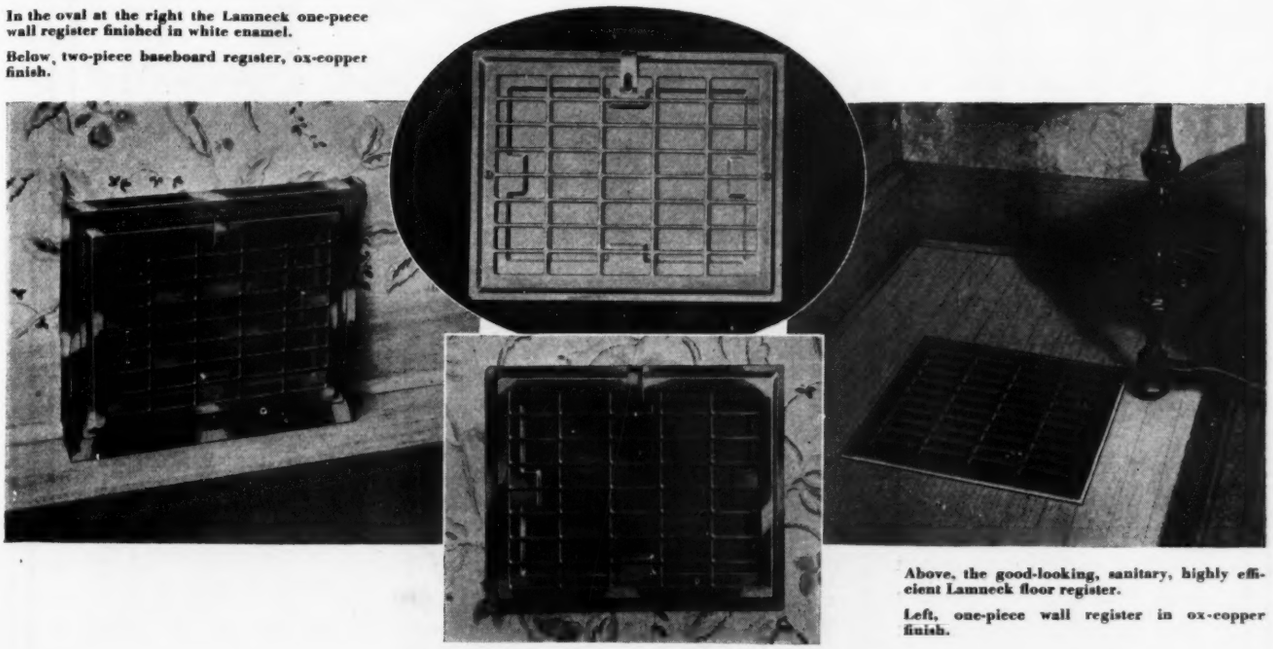
Name.....

Street and Number.....*Town*.....*State*.....

When writing mention AMERICAN ARTISAN—Thank you!

In the oval at the right the Lamneck one-piece wall register finished in white enamel.

Below, two-piece baseboard register, ox-copper finish.



Above, the good-looking, sanitary, highly efficient Lamneck floor register.

Left, one-piece wall register in ox-copper finish.

3 Important Questions About Your Furnace . . . *And the Answers Depend Almost Entirely on the Registers You Use*

1. Is the Furnace Efficient?

The most carefully designed furnace job cannot be efficient if the registers offer resistance to the passage of warm air. Registers are the very "bottle's neck" of the heating system. There is no wisdom in designing a furnace job to deliver a large volume of warm air to the registers if that air cannot get through the register as easily as it rises through the pipes, and with as little friction.

Because of their patented construction LAMNECK floor registers have a far greater free air area. They make any furnace more efficient.

2. Is the Furnace Clean?

You may sell a furnace that absolutely will not let smoke, fumes or dust leak into the casing; but that furnace will not give clean heat if dust collects in the floor registers and falls down into the warm air ducts, to be blown out into the rooms as soon as a good fire is started.

LAMNECK floor registers are the only floor registers designed so that they are easy to keep clean. Their fans close up tight against the grill bars so that a vacuum sweeper removes any dust that may accumulate.

3. Is the Furnace Workmanlike and Substantial in Appearance?

If good appearance has anything at all to do with selling a furnce, certainly the appearance of the registers is most important. The registers are the only part of the furnace that are looked at every day, winter and summer.

LAMNECK registers will make your furnace easier to sell because they are, we believe, the best looking registers on the market. We can prove that they are cleaner and more efficient in performance, but since beauty is a matter of opinion you will have to see them to be convinced that they are the best looking registers that you have ever seen. That's why we urge you to send the coupon below for a sample register free.

THE W. E. LAMNECK CO., 416-436 Dublin Ave., Columbus, Ohio
Send me without obligation a sample floor register.

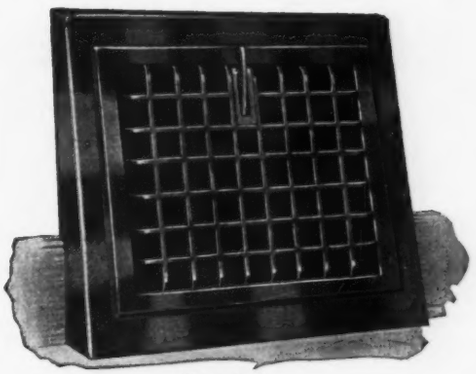
Name _____ **Address** _____

City _____ **State** _____

LAMNECK IMPROVED REGISTERS

Mention AMERICAN ARTISAN in your reply—Thank you!

Daddy of 'em All



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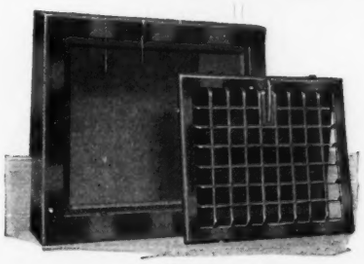
AUER

Registers and Grilles

THE AUERISTOCRAT

Auer Registers are a Mark of Distinction—yet cost no more than the ordinary, less efficient types. Auer signifies Registers of Merit, Perfect Operation and Attractive Appearance.



Colonial Model—Grille Removed

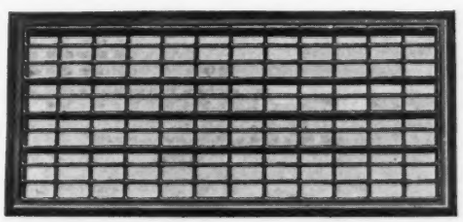
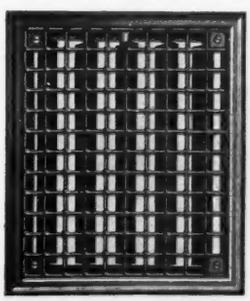


Fig. R—Oblong Mesh



Clothes Chute Doors

STEEL COLD AIR FACES

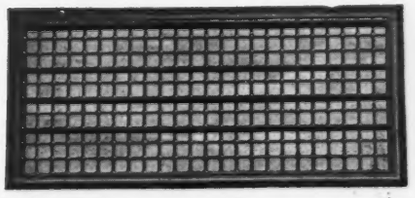


Fig. T—Lattice Design

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The AUER REGISTER CO.

CLEVELAND, OHIO.

Cut your costs with—

THE MARSHALLTOWN LINE

# of cutting machines

Only Three Moving Parts

Shear keeps sharp even after months of hard service

The MARSHALLTOWN ROTARY SHEAR

THE Marshalltown Rotary Shear proves a profitable investment in even the smallest of shops. *It does all your cutting and does it accurately and quickly.*

Time is *money* in your shop and besides with this machine you turn out cleaner work without wasted material. Hand or Power operated—Simple durable construction and the blade stands up under heavy constant use.

It will handle sheets of unlimited width and cut curves in any direction.

Write for complete details and let us tell you how little it costs.

The Marshalltown on the left is our No. 18 Hand Power Shear. *Every shop* can use one or more. It cuts 18 gauge and lighter. Takes sheets any size — cuts accurately and quickly.

The Marshalltown Line includes Shears, Plate Bending Rolls, Pressure Gauges, Flue Welders, Punch Pressers, etc.

MARSHALLTOWN MFG. CO.
MARSHALLTOWN, IOWA

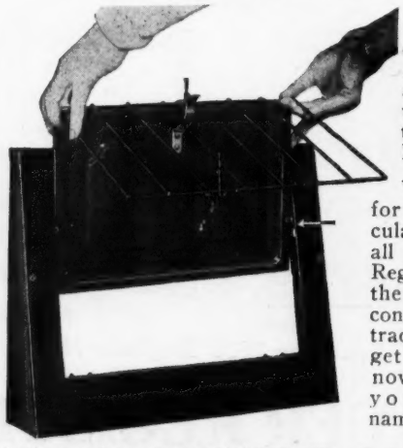
Ku-No Registers

in new and attractive two-tone finishes meet the demand for color—

THE registers constitute a part of the warm air heating system that is **seen.** They should be in harmony with the general color scheme of the rooms. They should be easy to operate. KU-NO Registers meet these requirements. Its new patented locking device holds the wing in any desired position without jar or vibration.

To remove the face of the KU-NO Register only a slight pressure of the thumbs against the top of frame is necessary. No Screws — No Springs.

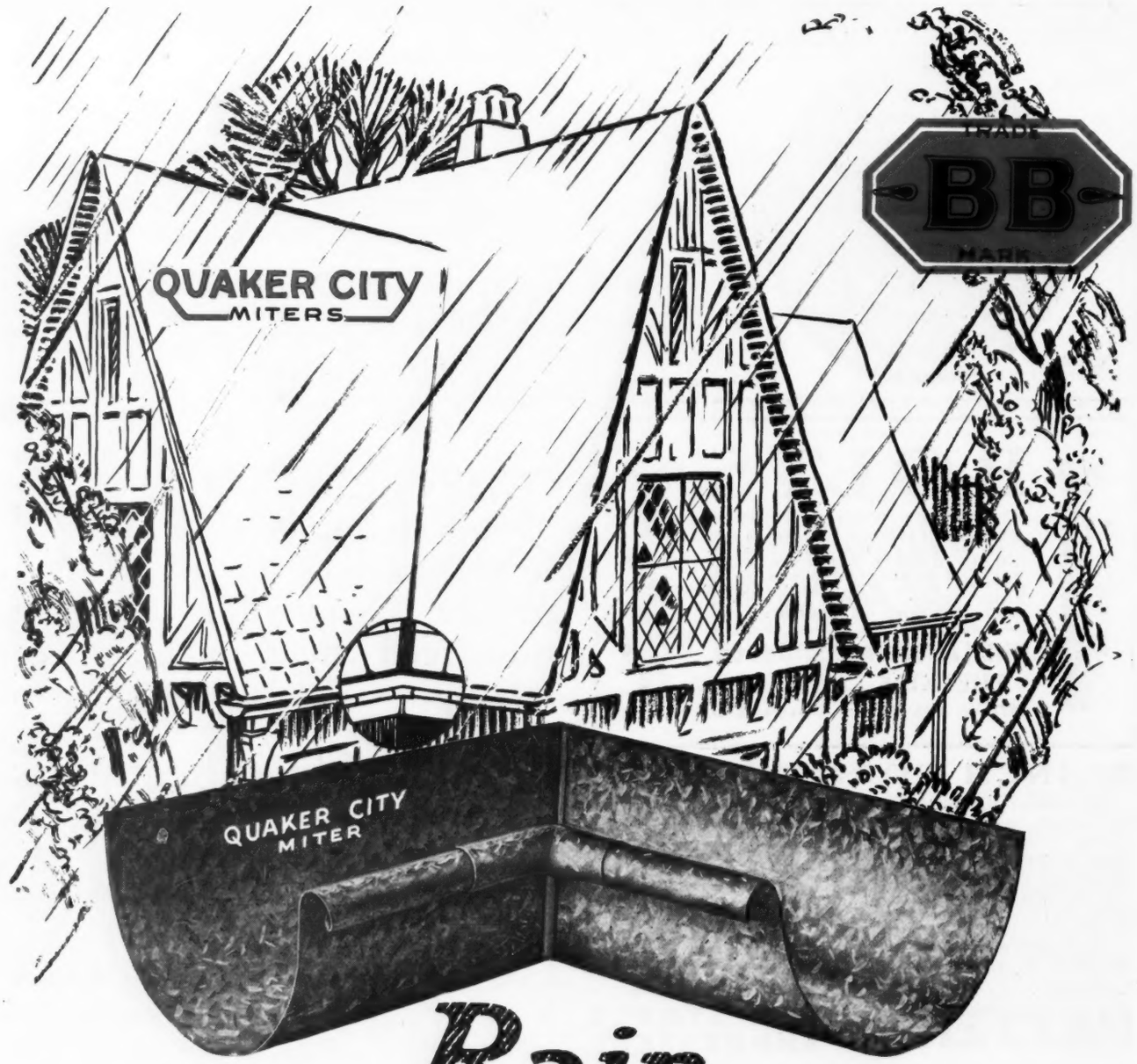
KU-NO Registers have an air capacity as near 100 per cent as it is possible to have.



You sell your customers something new and better when you sell them KU-NO Registers.

Write today for illustrated circular which tells all about KU-NO Registers. This is the **new** register construction the trade is praising—get our prices now — send us your jobber's name.

KU-NO REGISTER COMPANY
ST. LOUIS, MO.



Rain-

will not leak through its seams—

Snow-

will not clog in the corner—

Sleet!

will not force open its seams—

YOU will use this Eaves Trough Miter with complete confidence because it is designed and fabricated to stand up under the ravages of the elements.

The Quaker City Double Seamed Reinforced Corner Miter is made with an unusually wide seam and a reinforced corner which *holds* but allows for expansion and contraction. It's the strongest miter made.

Plus its superior construction it is made only of the highest grade metals — galvanized Steel, Armco Iron, Toncan Metal and Copper.

IT will pay you to use this, the most serviceable miter —you render greater satisfaction and make a better profit.

The Quaker City Miter comes neatly packed in cartons containing two dozen—*any jobber will supply you.*

If your jobber cannot supply you promptly, order direct, sending us your jobber's name with your order.

Made by the Makers of the famous "Quaker City" line of End Pieces, Outlets and Caps.

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Founded 1880

American Artisan

The Warm Air Heating and Sheet Metal Journal

Yearly Subscription Price:

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Published EVERY SATURDAY—to Promote Better Warm Air Heating and Sheet Metal Work

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Vol. 98, No. 26 CHICAGO, DECEMBER 28, 1929 $2.00 Per Year

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QUALITY IS EASIER TO SELL AT A GOOD PROFIT

WATERBURY SEAMLESS FURNACE
REG. U.S. PAT. OFF. PIPE OR PIPELESS

Save with Steel

PEOPLE buy Value, Satisfaction and Service rather than Price in these days. So it is easier for you to sell them a superior heating system that brings you a substantial profit than an ordinary one which takes greater effort and gives you less return.

There are four outstanding features that make the Waterbury the best heating system for you to sell:

1 Seamless, one-piece, gas-tight construction, absolutely guaranteed, furnishes CLEAN, healthful heat, free from smoke, soot, dirt and coal-gas.

2 A real humidifier that keeps warm air at the proper humidity at all times, to give greatest comfort. Fully automatic, if desired.

3 Exceptionally heavy materials are used throughout. Steel parts are guaranteed for ten years. Extra long years of service are assured.

4 Fuel economy makes this heating system the cheapest in the long run. Especially large radiating surfaces and patented baffle plates utilize every bit of heat energy to greatest advantage. Burns any fuel.

Your customers will always be satisfied with the Waterbury you install for them. It is the heating system that will protect your reputation as well as afford you good profits. Send coupon below for complete information about our dealer proposition.

Complete Stock Carried in

Philadelphia Chicago Pittsburgh New Orleans
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Please send me complete information about the Waterbury Seamless Furnace and your dealer proposition.

Name .....

Address .....

City ..... State .....

American Artisan
The Warm Air Heating and Sheet Metal Journal

Vol. 98 CHICAGO, DECEMBER 28, 1929 No. 26

What Is the Furnace Outlook For 1930?

THE YEAR 1929 has been unusual in the warm air heating and sheet metal business. It has been unusual in that many furnace installers have learned to their sorrow that they cannot carry on their business and pay their legitimate bills by cutting prices and then failing to collect what they finally agreed to accept.

The year 1929 has been unusual in the furnace business in that it has compelled furnace men to apply genuine salesmanship to get business; it has required the bringing into play of every ounce of ingenuity that the installer could muster, in order to keep things moving. And those who have been able to stand the "gaff" have profited by the experience. They have had revealed to them the fact that there is always some business to be had regardless of what the general conditions are, the only necessity being that in dull times greater effort must be expended to induce action than during times of more general purchasing. It's a good deal like the two men rowing their boats through a stream. Suddenly they find themselves in an accelerated current. One man, realizing the altered condition, exerts greater force upon the oars and maintains a steady progress through the water. The other man finds himself falling behind but does not know the reason. He has not yet awakened to the fact that the speed of the current has changed and that he, too, must pull harder if he does not wish to be carried back faster by the current than he goes forward under the force he is spending.

BUT if 1929 has been an unusual year, what about 1930? To what extent will 1930 be like 1929? Wherein will it differ? Wise were the men indeed who could answer those questions. This much is certain, however: The men who were so fortunate as to make money in the furnace business (and their number is not so small as might be supposed) are going to find it much easier sailing during 1930 than they did last year. They will still have to work hard for the business they get, but they are going to be rewarded in greater abundance for effort expended than during the year just closing.

What authority provokes that conclusion? There are several causes. For the past two years there has been a gradual decline in residence building. In many cities real estate has been a drug on the market, and in consequence, residential building was at a standstill. By far the largest single factor contributing to this state of affairs, authorities agree, was the total disappearance of money to finance construction and real estate operations. Banks and large corporations had every dollar they could possibly spare on call loans in Wall Street. Why keep money employed on home projects at 6 or 7 per cent when Wall Street was often paying as high as 15 and even 20? was the attitude of the bankers. Home industries and undertakings needing financing could wait.

BUT that situation was changed rather abruptly when the denouement of the stock market came. Money that had been sojourning in New York was suddenly called back home for a vacation. The result was a drop in interest rates to a point even below normal. Now that there is money available again to finance building at reasonable interest rates, this fact is bound to act as a stimulant to construction activities in the small home class.

(*Continued on Page* 234)

ATTENTION!

THIS issue of American Artisan is published with the aim in view to give warm air furnace installers an annual review of the warm air heating industry and a ready reference during 1930 for all types of information applicable to the industry.

Any furnace installer wishing further information regarding any of the plans, layouts or articles appearing in this issue may have it by writing to our office at 139 North Clark Street, Chicago. We cordially invite you to avail yourselves of this privilege.

Basic Advantage of Warm Air Heating Revealed by Prominent Chicago Physician

IN an interview which the Editor of American Artisan had with a well-known Chicago doctor, facts were learned that show why it is necessary to restore moisture to the air of the artificially heated home. The facts here are basic truths about the manner in which the human system reacts to a lack of moisture in the air and how disease germs obtain entrance into the human system through cracking of the tissue due to excessive drying of the latter.

Any furnace installer can take the facts given in this article and build around them a simple but concrete sales story with which to sell his products.

WARM AIR furnace installers and, in fact, the entire warm air heating fraternity, has heard a great deal in recent years about the superior merit of the warm air heating system, not only from the standpoint of heat, but of health as well.

There has been no limit to the literary effusions set adrift for public mental digestion, for the most part legend and misinformation disseminated for the purpose of "educating the public" on the manner in which the warm air heating system will restore health and do untold other things to make life bearable for the home owner during the winter time.

Exaggerated statements and half truths have emanated from divers sources in such volume as to leave the furnace dealer with little more than a jumbled mass of incomprehensible data, out of which he has found it largely impossible to compile the necessary coherent story around which he could build a simple, truthful sales campaign that would contain the necessary fundamental basis for success. It is largely for this reason that to date advantage has not been fully taken of the most splendid sales opportunity that the most optimistic of copy writers could wish for as an inspiration.

Perhaps the justification for this chaotic state existing in the sales end of the warm air heating business finds itself today, if there is one, in the fact that the industry during the past five or six years has had so much to do, in order to bring the product itself up to a standard that would conform to the newly generated or acquired ideas and demands of the public, that some phase of the work had to be pushed to one side. (Of course the industry is only 100 years old, but it is only within the last decade that it began to awaken to the fact that it had some investigating to do.)

The result has been that each manufacturer, each jobber, and even many of the dealers have tried to work out for themselves data that would help them to sell warm air heating equipment, but they all viewed the subject from the sales angle. And as far as can be learned, a pretty sorry mess was made of it.

These men deserve credit for trying at least, but why has no one ever gone to the real source of information for what they wanted, so that they could present the true facts to the public? In this case that would be sufficient if properly done.

The time has come when the industry should know the facts as viewed from a purely medical standpoint. With such information at their command, furnace dealers could prepare a sales story that will be forceful because truthful, and they could then tell their prospects in a few words what the latter is most interested in knowing—how to get a heating system that will insure adequate, healthful, properly tempered air into his home during the fall, winter, and early spring when his family is obliged to remain indoors for the most part.

With this object in mind, the editor of AMERICAN ARTISAN secured an interview with one of the most prominent practicing physicians in the city of Chicago, a Rush Medical graduate who has been engaged in the profession for more than twenty-five years in the city, and obtained from him a definite,

clear-cut, non-technical explanation of why proper humidity and air motion are essential in the heating of a home. His name, of course, has been omitted for obvious reasons. But here's what he said:

"Humanity through all the ages has had to combat sickness and disease. Not knowing the cause of disease, man devised many methods to fight it, and these changed as the intelligence of the people progressed.

"Not until Sir Joseph Lister, an English surgeon, discovered the relationship between disease and cleanliness was much success achieved. Lord Lister proved conclusively that in operation proceedings wounds healed quickly and without infection if strict cleanliness was practiced. An aggressive search for the reason why this was possible led to the discovery of the active cause—bacteria.

"Since this discovery the field of medicine has entirely changed, so that today in the greater number of cases of sickness we have isolated the causative bacteria. Just lately you probably read the account of Dr. Isidore S. Faulk at the University of Chicago having isolated the influenza or "flu" germ, which he has spent years to discover.

After the discovery of bacteria, the medical fraternity began treatment to kill the disease germ with medicines applied both internally and externally. Many different germicidal solutions have been discovered and much has been the success along these lines.

"Today we are greatly interested in preventive medicine; in other words, we are saying, why should we be sick if we know the cause? Removing the cause will prevent sickness. So we have in all communities departments of health whose business it is to warn people of danger, remove things of danger or have us use foods, etc., which are not dangerous. We have city inspection of food, water, milk, ventilation, etc., and in this good work every manufacturer can assist, and they are doing so. No small part of the effort is being made by manufacturers of heating plants for the dwelling.

"For instance, we know that certain diseases are more prevalent in the winter months, particularly pneumonia, than at other times during the year. And why? Because pneumonia is a disease of air disturbance or faulty air mixture. In the heating of the home we find two difficulties: First, the production of too dry air; secondly, not enough air motion to cause change of air. The first of these causes—too dry air—affects the respiratory tract by causing dehydration or a drying up. This loss of too much moisture from the human body makes the throat dry and causes shrinking of the tissues. This shrinking interferes with the blood circulation and nourishment, which in turn lowers the resistance of the tissue and in some cases causes slight cracks or fissures to appear therein. Now, since in the normal condition we have upwards of seventy different kinds of bacteria present at all times, it is easy to see why, with lowered resistance of the tissue and a place of entrance for the pathogenic bacteria, trouble begins.

"Therefore you can readily see why it is necessary for any heating system, in order adequately to perform its function, to supply not only heat but to restore sufficient moisture to the air to equalize that within the body. When you do that you are engaging in an activity that prevents disease.

"As to the second difficulty in the heating of a home—air motion or circulation—we know that to have a continuous flow of oxygen air motion is necessary. Oxygen is food to the human body and is absolutely necessary for the body to function."

With that final statement, the doctor closed the talk.

Now, what type of heating system comes most nearly to supplying the needed moisture in the air? What system prevents stagnation of the air? What system gives the best air motion and provides the gentle, spring-like breezes? Can the steam or hot water systems lay claim to any such performance? No, that is the exclusive privilege allotted to the warm air heating system. Take it or leave it. But there it is.

WE are in the age in which the medical profession is bending its greatest effort toward preventing disease. Doctors are telling the people that it is better to prevent illness than to suffer the disease to creep upon us and then after we are thoroughly saturated with it, call in a doctor and defy him to make us well again. How much more sensible it is to take the precautionary measures before the illness comes on.

It is hoped that every furnace installer will read this message thoroughly and then go out and construct a sales campaign that will take into consideration what the medical profession has already done toward teaching the people to prevent sickness. You have a wonderful sales appeal for the warm air furnace. If you will only take advantage of it! The radiator people haven't one-third the appeal which the warm air industry has, but look what they are doing!

Any warm air furnace installer who cannot take facts such as are presented by the doctor in this article and build around them a sales campaign that will enable him to sell four times as many warm air heating plants during 1930 as he did in 1929 or any other year, should go into some other line of business.

Never in the history of all mankind has there been so clear-cut an advantage of one product over another as is the case of warm air heating over any other type of heating system. The facts presented can be verified. Boys, we've got the product that can't be beat. Let's go!

Three Model Gravity Warm Air Ins
As Guides by Fu

By E. C. Taylo

THE MORE progressive warm air furnace manufacturers are constantly turning to new ways of doing things in order to get the furnace installer squared away on the right track and to help him in every way possible with engineering service, so that each job going into a home owner's basement will be a booster.

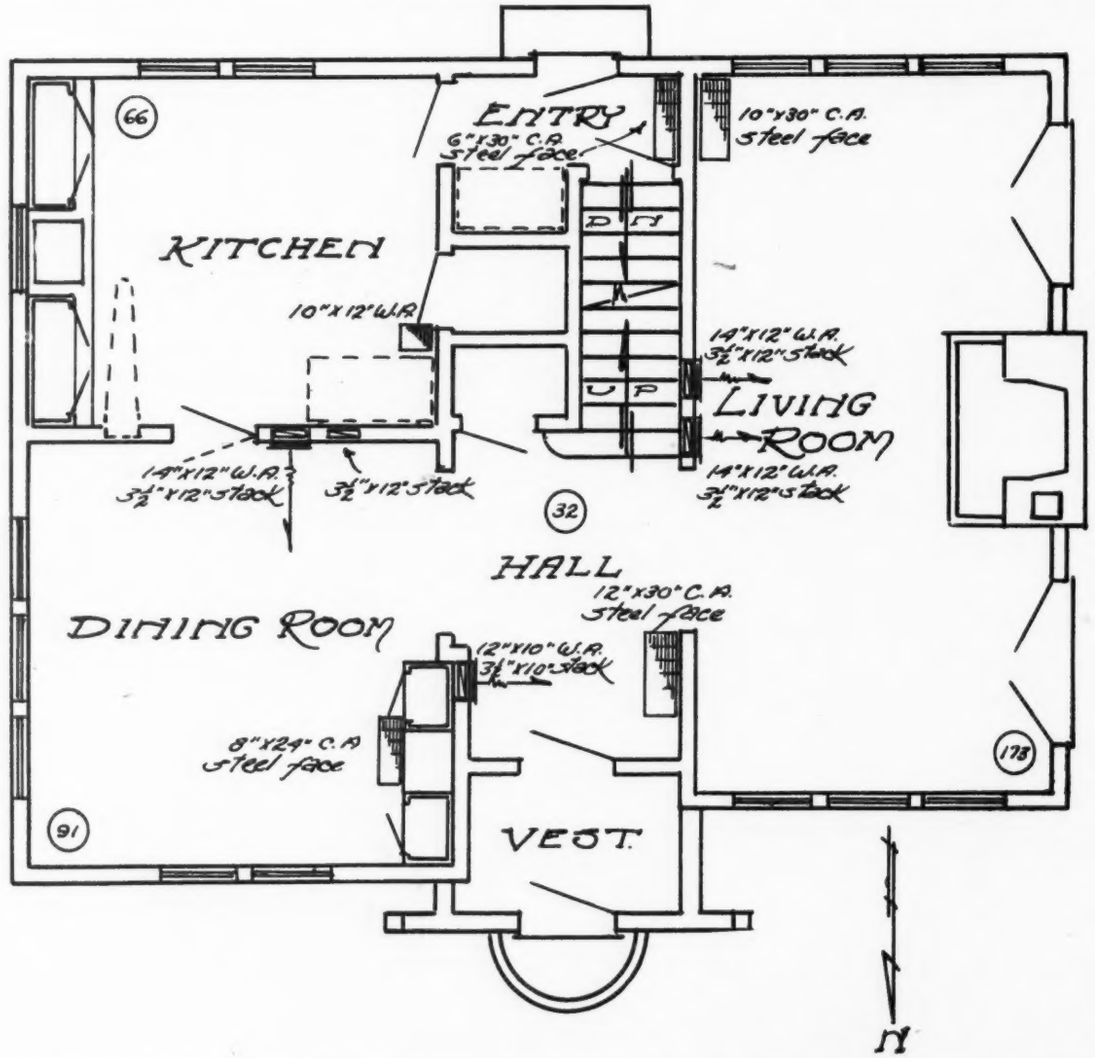
One furnace manufacturer has conceived the idea of getting up a booklet containing the basement and floor plans of twenty-five different types of warm air furnace installations. Each installation was selected as a model of that type of heating system giving complete details.

This booklet is sure to fill a long felt want with the progressive furnace dealer. By referring to this collection of drawings he will be able to pick out a type of home similar to the one which he is figuring and plan his own installation accordingly.

Typical homes of practically every type common to American building have been chosen. The plans are all drawn to 1/6 inch scale for convenience, yet legibility has not been sacrificed.

Inasmuch as there are many types of homes treated in this portfolio, the heating systems illustrated will serve as a standard of comparison for heating systems to be installed in houses of similar construction.

Each plan has complete information listed at the bottom relative to construction, glass area, exposure and temperature difference. The Standard Code requirements in square inches of warm air pipe area



First Floor Plan of Crayton House. Windows Are 2½x6 Feet. Doors, 3x7 Feet. Construction, 8-Inch Hollow Tile Stucco, Furred and Plastered. Warm Air Registers and Cold Air Faces Indicated on Plan

Air Installations Which Can Be Used by Furnace Installers

y E. C. Taylor

is plainly marked on each plan.

As a concrete example, we are showing in the following illustrations three of these model heating plans. The Corydon, a small frame bungalow; the Cullomburg, a Dutch Colonial home in face brick veneer, and the Crayton, a modern English stucco home.

The Corydon is a small frame bungalow. The heating plan for this home shows a plant which is a model for compactness. The longest warm air run is the one to the bathroom, which measures about 6 feet. The remaining four runs average a little over 3 feet each. Likewise the old air returns take but little space in the basement.

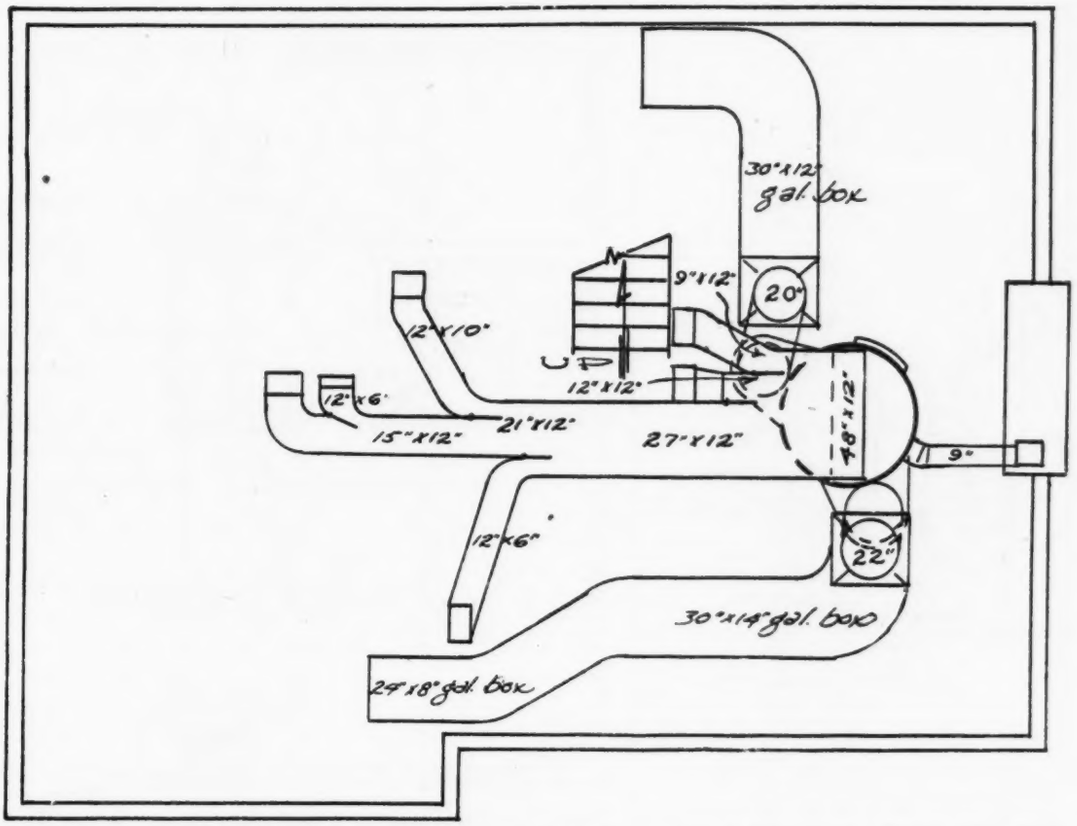
A rather unusual feature of this plan is noted in the kitchen where a cold air return is specified. Some installers will criticize this. It should be remembered, however, that the kitchen is only used about 4 hours out of the 24 for cooking, and when onions are being cooked, the kitchen window can be lowered for ventilation. With the exception of onions, few foods will give off sufficient odor to be noticed in other parts of the house on account of the recirculation of air. The engineers who got this up state that they have specified many cold air returns in kitchens in the past few years and find the housewife enjoys the heating plant when provision has been made for her comfort.

The Cullomburg is a typical Dutch Colonial home with a sun room at one end of the building. As is customary in this type of house, you will find a stairway in the center of the cellar. Thousands of dollars in annual fuel bills might have been saved American home owners if the architects had planned the cellar stairway in one corner.

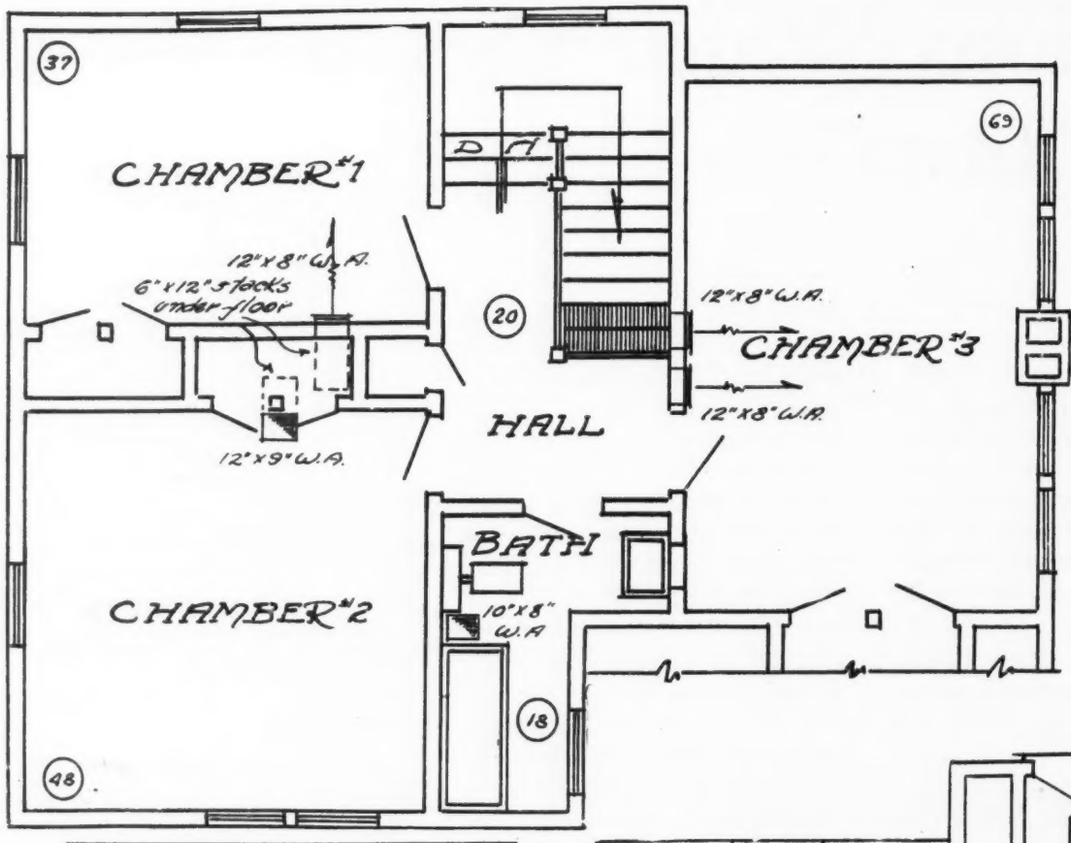
However, it is up to the heating man to make the most out of what he has. For that reason the furnace has been placed toward the north wall of the basement. The warm air runs have been equalized to good advantage and the front of the furnace is accessible without dodging pipes.

It should likewise be noted that ample room has been left in the basement for playrooms, laundry and fruit cellar.

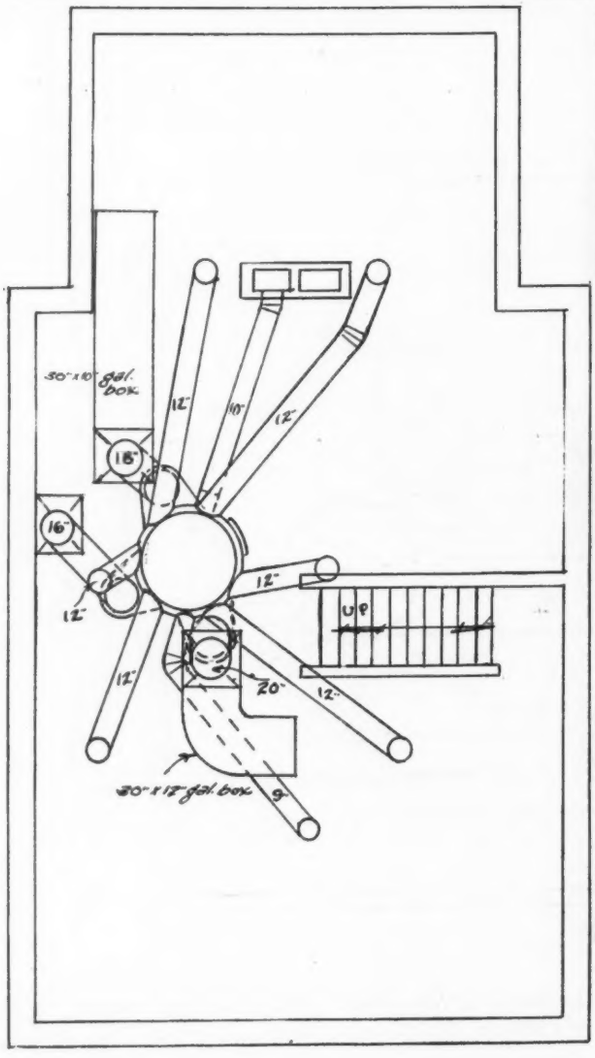
Another feature of this job is the fact that by using warm air risers from the tops of the first floor regis-

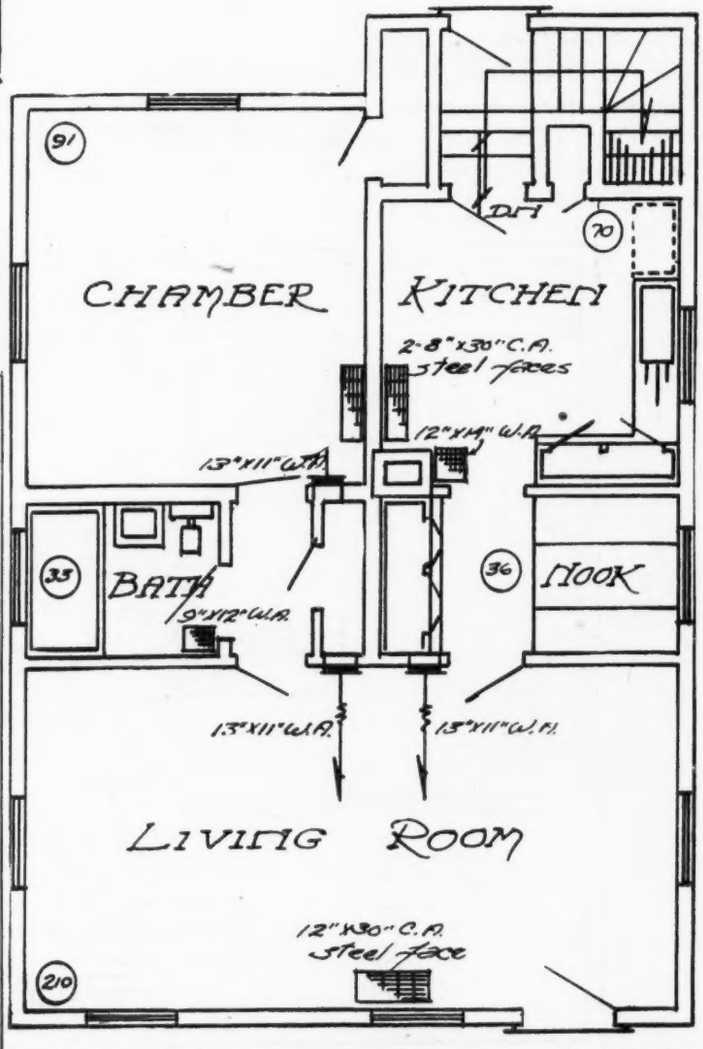


Basement Plan of Crayton House, Showing Furnace and Duct Installation Arrangement. Warm Air Pipe Equals 576 Square Inches. Cold Air Return Pipe Area 694 Square Inches. Size and Style of Duct Construction Indicated on Plan Itself

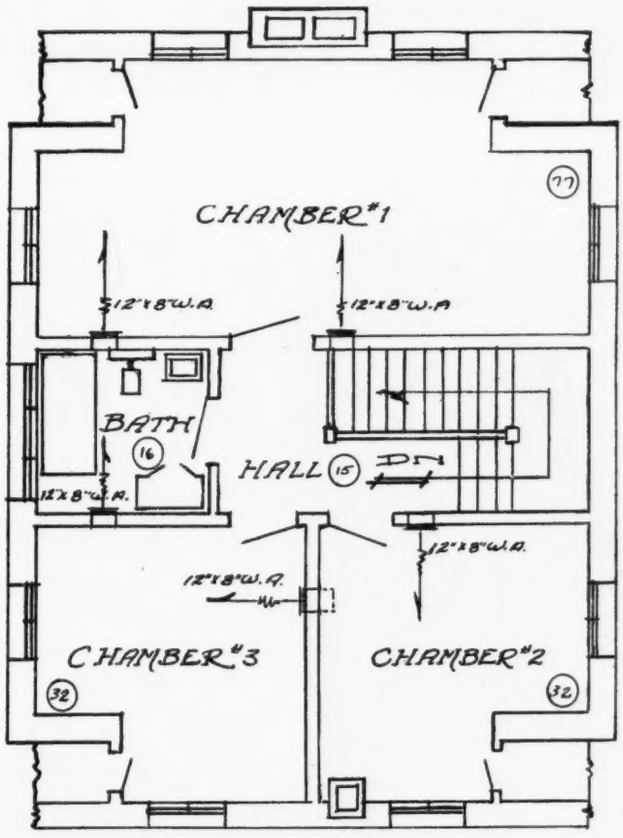


Second Floor Plan of Crayton House. Attic Is Floored. Windows Are 2½x6 Feet. Location of Registers and Stacks and Their Sizes Indicated on the Plan. Below, First Floor Plan of Corydon House. Windows, 3x6 Feet. Attic Not Floored. Unusual Exposure. Siding, Studding, Lath and Plaster. Location of Registers Given on Plan





Right, Basement Plan of Cullomburg House. Warm Air Pipe Area 742 Square Inches. Cold Air Pipe Area, 769 Square Inches



Second Floor Plan of Cullomburg House. Window 3x4 Feet. Attic Floored. Size and Location of Registers Given on Plan

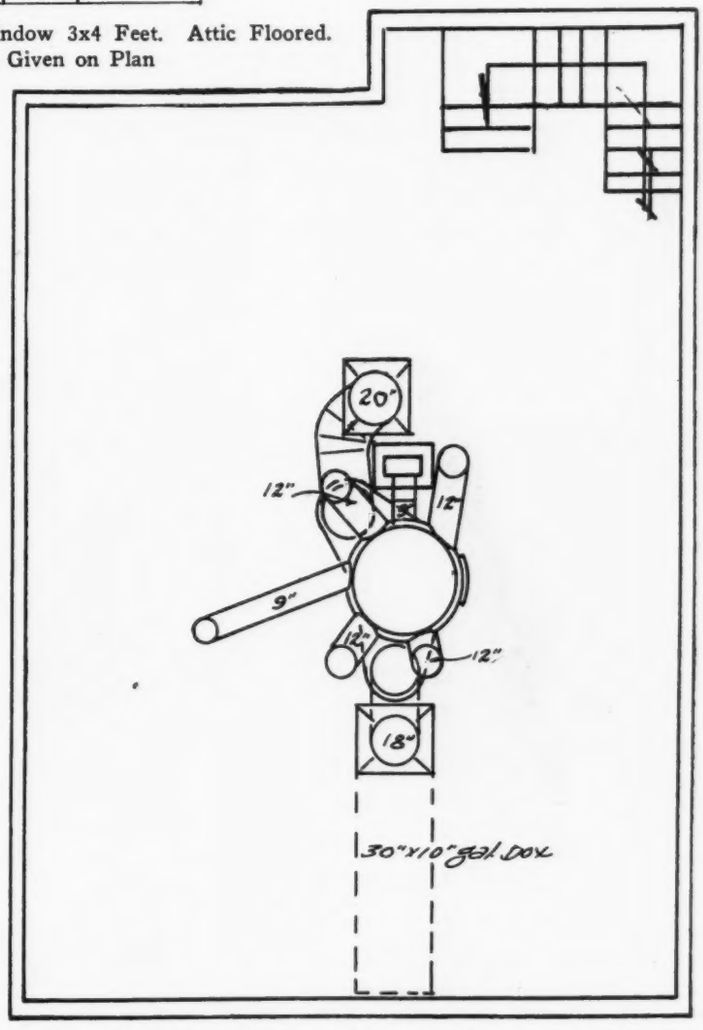
ters where wall construction and room requirements permitted, we found it possible to heat seven rooms, bath and hall with seven warm air runs. This feature will be more fully appreciated upon a glance at the large sun room, living room and chamber No. 1 on the second floor. Also the fact that all partitions are 6 inches thick and commercial size 3½x12 stacks are used throughout.

The Dutch Colonial home is a very popular type of architecture and we believe that the gravity round pipe installation we have indicated is as nearly ideal as possible, considering the building construction involved in this particular residence.

The Crayton, a modern English home, also offers obstacles to the installation of a warm air heating system. As in the Cullomburg, this building also has a stairway located near the center of the basement and the chimney flue is located at the extreme end. The obstacles are overcome by the installation of a trunk line system, using rectangular ducts throughout with the exception of the two round cold air pipes dropping directly down from the cold air ducts to the cold air chute. Trunk lining the warm and cold air system in this manner is the last word in warm heating, inasmuch as it does away with all pipes which may obstruct headroom. It also presents a much neater appearance in the event that the owner decides to convert the basement into a living room or den.

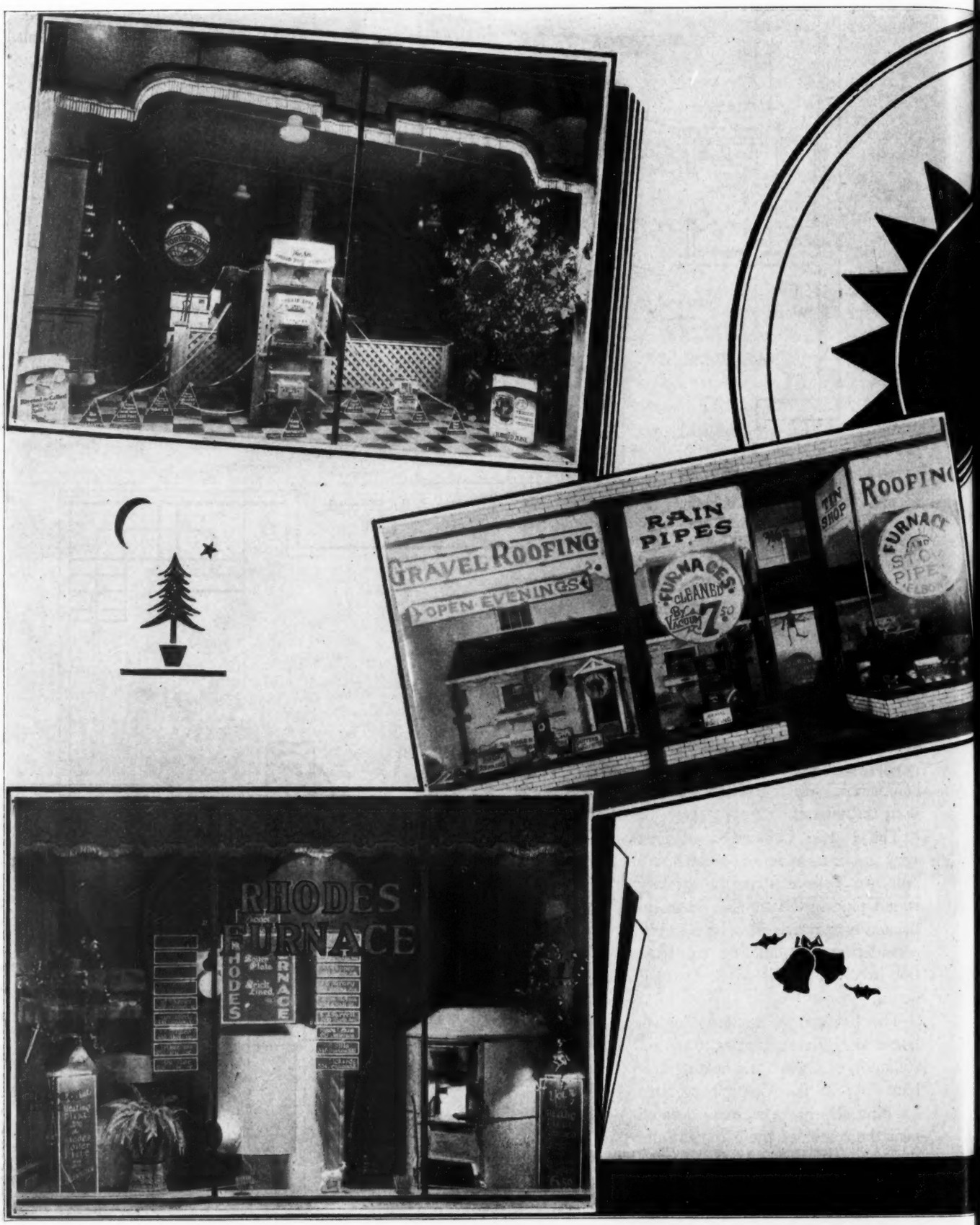
These three plans are but examples of various types of construction constituting the complete book.

As indicated in the box on the editorial page of this issue, any furnace installer who would like further information on the book of plans as outlined in this article or on any of the other plans or articles appearing in this issue may have such information by writing to AMERICAN ARTISAN, 139 North Clark Street, Chicago, addressing your communications to the editorial department.

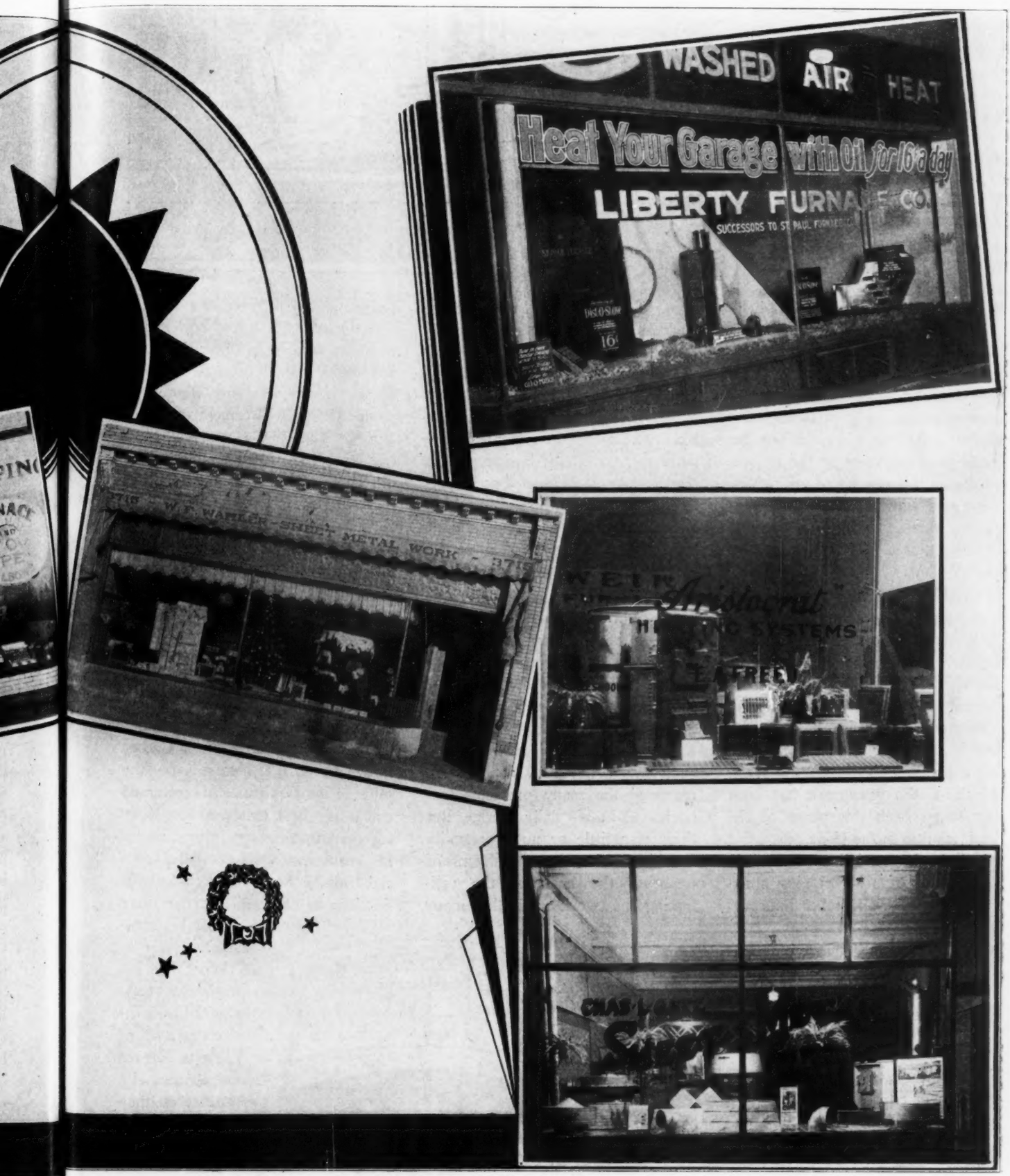


Basement Plan of Corydon House. Warm Air Pipe Area 516 Square Inches. Cold Air Pipe Area 568 Square Inches. Note Compactness and Centralized Location of Installation

Representative Warm Air



Air Window Displays of 1929



Why Cost Accounting Is Important to Warm Air Furnace Installer

By Joseph G. Dingle

IT HAS been the writer's privilege to appear before a state convention of Sheet Metal Contractor's Association for the past three years and present annually some phases of accounting as it relates to their industry. At these conventions he came to know some of the leaders in the industry and was very much impressed with the effort they were putting forth to bring the standard of their chosen field of activity to a higher plane.

At these conventions there were able addresses on matters pertaining to the work in sheet metal and particularly on the subject of warm air heating. The Standard Code appeared on each program and the writer was very glad to note the development of the science in measuring a building for its heating plant. Much of the guesswork has been eliminated from this phase of the business due to the Code.

It is true your industry has been making progress in bringing out a Standard Code and other improvements. The great work should go on. But there is one defect which your Standard Code and all other developments in shop practice will not be able to overcome. Your industry is composed of many separate and distinct business units, the great majority being small, individually owned shops, located all over the country and usually two or more in each city or town. Each individual business has one or more competitors. Competition is the life of business when that business is conducted according to well charted courses. But where such business is conducted without the aid of good records covering the cost of doing business, competition usually is the death of business.

I would like to sketch briefly some of the important points to be considered by the warm air heating and sheet metal shop owner. Your competitor, and possibly yourself, probably came up from the ranks. He learned his trade and made a success as a sheet metal worker. He mastered the many problems encountered in his daily work. But there was little or no opportunity for him to study the problems of financing the business, the estimating of work and the many phases usually referred to as executive duties. He knew how many hours he worked and how much his pay check should be, but what he did not know was just where the money he received came from. He perhaps did his work well and everything went together nicely, but did he know whether the job cost more or less than the customer paid for it? I dare say he thought there was a profit, and a good one. He did not know, nor did he have an opportunity to study the cost records of the job. His pay check was quite likely all he knew about the cost.

Now he is in business. His own capital is at stake. He knows how to do the actual work, but his duties are more complicated. He has other things to do. He must price the jobs, he must assemble his materials and bring these materials and labor together to produce those articles his customers require. What special training has he had that qualifies him to carry on the executive end of his business?

Adequate Cost Accounting Systems Are an Absolute Essential in the Conduct of a Warm Air Heating Business

What are his prime costs—material and direct labor? These he can see and actually measure as they go into the job, but this is usually after he has

named the price for which he will do the work. Too late then to correct errors. The loss on account of an overlooked bit of material or more time than he thought is his own loss, not chargeable against his customer. But let us grant that he can estimate his material and direct labor accurately.

Now comes his overhead. What does he know about that? He can not see the indirect expenses as they pile up all around him. He knows he has shop rent, telephone bills, heat, lights, supplies used in the shop and office. He probably realizes that his machinery and tools will eventually wear out and somebody will have to replace them. He should know that he pays for more hours of labor than he sells. There is in every shop some idle time.

Suppose he knows to a penny what his overhead expenses are. What part of those expenses must be added to each job in order that his customers pay them for him? Does he fully realize that there are four parts to every sale he makes? The customer must pay for materials and direct labor, a proper portion of the overhead and a reasonable profit. If the price fails to include full cost of material, labor and overhead, the seller's part, the profit, is reduced or wiped out and he actually suffers a loss.

Assume, if you will, that your own business is running along fine. You are making a good profit and would make more if that fool competitor of yours did not quote such low prices. Does he not force you to bid lower than you should in order to get some business? We will admit that you are a good business man and know just what it costs you to do business. You, in turn, must admit that while you know what price you must ask for your work, you cannot get the jobs at that price because your competitor will sell for less. You have to meet competition and do. You and he both lose money on account of the fact that your competitor thinks he can sell cheaper because his rent is less than yours, or because he works at the trade while you wear a white collar. Your rent may be double his and still be cheaper. If your sales are twice his, your rent content in sales is exactly equal to his, but he, in his ignorance, doesn't know it.

If your business justifies your devoting your time to selling and superintending the work of your men, your increased volume will permit you to make more money than the little fellow who "works" and lets the executive end of the business take care of itself. You increase your expense slightly but increase your volume of business materially, thus reducing your overhead content in sales. The unfortunate part of this matter is that you alone cannot convince your little competitor that he is wrong; that he cannot make money by his mistaken ideas.

You may say time will take care of him; that he will soon go broke and thus eliminate himself as a competitor. It is true that he will soon fade out. It is also true that shortly after his fadeout some other workman will blossom out in his place and the merry race is on again. Your own business ability and greater capital may outlive a half dozen little fellows, but while they are in business they each in turn cut down your profits and you suffer along with them. There is but one relief from these competitors whose business is based on their belief that they can do business cheaper than you can. You must help educate them.

The merchant who sells goods in the same condition in which he buys them has his problem of overhead and cost of goods. He does not have the labor content the warm air furnace installer has. He is not a manufacturer. The merchant, as a usual thing, has another advantage over the sheet metal man.

There are uniform conditions existing in straight merchandising, and if the merchant does not know his overhead costs, he can find out from responsible sources, usually his trade association, what stores in his class and handling similar merchandise have found to be average costs. He can find some rule from sources outside his own business by which to make a fairly close guess at what his expense element amounts to. So far as the writer knows, there is not available such data concerning the sheet metal industry.

There have been numerous efforts in certain parts of the country to gather actual cost data for the purpose of determining the average overhead costs in this industry. These efforts, it is believed, have failed on account of the poor support given such efforts by the only people who could possibly furnish the information. The individual shops must furnish to some clearing agency the actual figures of their expenses before any authoritative data can be compiled and published. You may say you don't want to be bothered getting up such figures; that you don't care what the average overhead costs are. How can you judge your own business efficiency without some knowledge of your industry generally?

To show in a very clear and concise manner the need for some improvement in the accounting end of your industry, there is shown below some figures, taken from five sheet metal shops. These figures are just as the proprietors classified their cost elements. The average $100 of sales varied as follows:

	Shop No. 1	Shop No. 2	Shop No. 3	Shop No. 4	Shop No. 5
Materials	$36.05	$45.95	$27.87	$48.74	$28.25
Labor, direct...	27.97	28.46	39.04	31.43	29.06
Overhead .....?	28.39	8.85	10.71	12.67	14.66
Profit	7.59	16.74	22.38	7.16	28.03
Sale price	$100.00	$100.00	$100.00	$100.00	$100.00

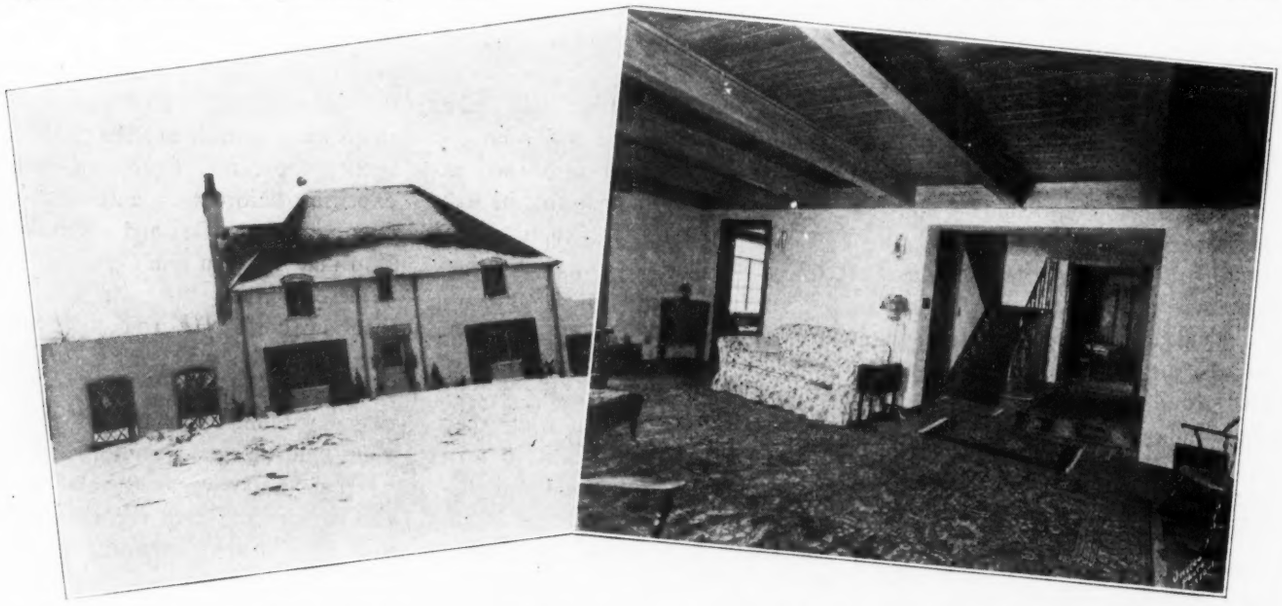
It is true conditions vary materially in the different shops. This statement is certainly proven by the figures above. Shop No. 1 shows overhead to cost $28.39 in each $100 of sales, and profit only $7.59, while shop No. 3 shows overhead

(*Continued on Page* 223)

How Gas-Fired, Forced Air Washing Comfort and Free Respons

By R. P.

THE Laurence Rust residence, Country Club Place, Bloomington, Illinois, is one of the fine new homes erected in this exclusive Bloomington subdivision this year. High-class architects carefully designed the home with painstaking care to obtain the utmost beauty, comfort and utility.



Exterior and Living Room Views of Laurence Rust Residence, Country Club Place, Bloomington, Illinois, Illustrating the Fact That the Warm Air Heating System is Now Rendering Excellent Service in the Better Class Homes

Mr. Rust was a careful buyer and thoughtfully considered the merits of the different heating systems offered. He selected warm air because:

1. There were no bulky radiators to occupy valuable floor space.
2. Inconspicuous registers harmonized completely with the beauty of the rooms, and there was no need to resort to cumbersome camouflage such as is necessary with radiators.
3. He was convinced that the heat delivery of warm air is more positive and dependable than that of a steam or water radiator system.
4. The idea of filtering and cleaning the air, and automatically amply moistening it appealed to him.

Why He Bought Warm Air Heating

Only with warm air heating could he be definitely assured that the heat delivery would be dependable and positive. He wanted the advantages which beautiful registers make possible and although he was somewhat skeptical about a gravity job, when shown the application of forced air and automatic humidification, he offered no further objection. Even before the matter of which fuel was to be used was settled, it was decided definitely to install a warm air system.

Fully three months elapsed from the time the decision was made in favor of warm air before Mr. Rust chose the fuel he would use. Coal was considered and was in the running for a while because of price. Oil was very seriously considered and was practically decided on.

Why He Bought Gas Heating

Mr. Rust bought gas because the gas company was able to show him to his satisfaction that the cost of burning gas would be very little greater than oil and because the first cost of a warm air gas furnace was less than the combined first cost of heating unit, oil burner and tanks.

Mr. Rust understood that regard-

and Warming System Produces dom From Tending ibiliites

WHITMER

less of whether he chose to burn coal, oil or gas he could have all of the advantages of positive pressure warm air heating and air conditioning. The only requirement was to decide on the fuel.

The photograph of the basement shows the installation. The furnace is trimmed in green krinkle finish. All warm air pipes are rectangular in shape and run in trunk lines flat on the ceiling, out of the way. All cold airs also run flat on the ceiling. Neither the furnace nor the piping system interfere in any way with the use of the entire basement for a playroom, laundry or recreation room.

There are three cold airs on the job—one centrally located in the baseboard immediately beneath the stairway in the center hall draws cold air from the upstairs and from the dining room and hall. The other two, located in the living room, handle the infiltration from the large glass surfaces and French doors of that room.

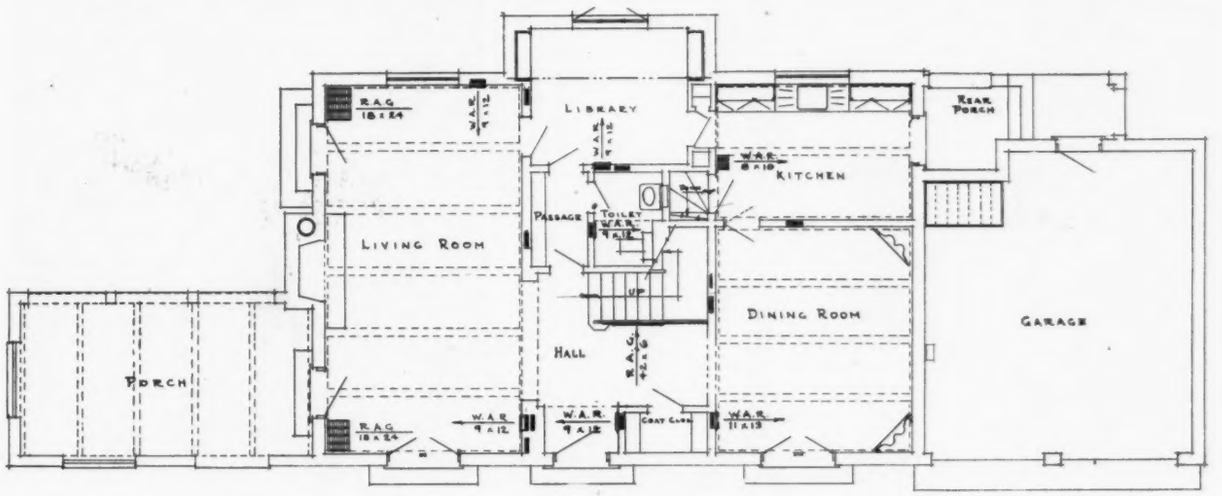
The two return-airs in the living room are pebble-face grilles flat in the floor and painted to harmonize with the floor. Return air in the hall is of wood and is painted as an integral part of the baseboard itself so as to be in no way noticeable. The inside of all cold airs is painted to match the exterior, so no sheet metal work is apparent.

All warm air registers, both on first and second floors, are of the baseboard type and are painted to match the woodwork by the painter on the job. The interior of the register boxes was painted the same color as the woodwork, leaving the job neat and workmanlike, clean and harmonious. Floor registers are used in the kitchen and in the maid's rooms on the third floor.

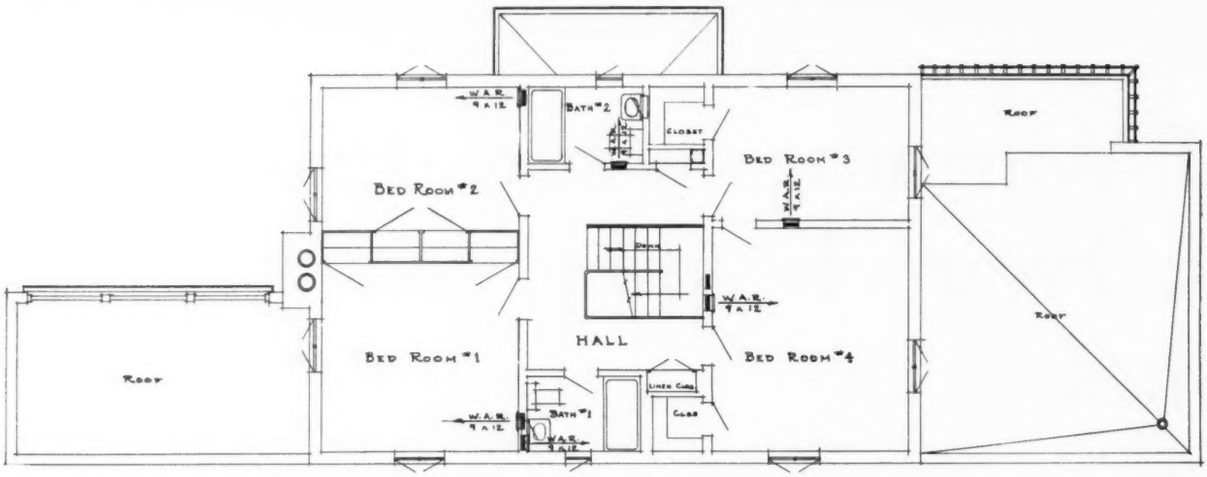
The results obtained have been very satisfactory. The automatic clock thermostat, inconspicuously located, turns the heat down to 60 degrees at 10 o'clock at night and automatically turns it up to 70 dedegrees at 6 in the morning. The gas burners and the fan operate silently.

After completion, the job was carefully balanced. Register temperatures on a 10 above zero day were found to run around 140 degrees, with velocities of around 400 feet per minute at each register. Humidity was found to be 40 per cent.

This job is but one of a number of such in Country Club Place, Bloomington. Others burn oil or coal, and all are giving similar results, which proves that the warm air heating industry has something definite and serviceable to offer every class of home owner. That



First Floor Plan of Laurence Rust Home, Bloomington, Illinois, Showing Location of Warm Air Registers, Stacks to the Second Floor and the Cold Air Returns. Furnace Installers Should Study These Plans Carefully in Order to Learn Proper Balance



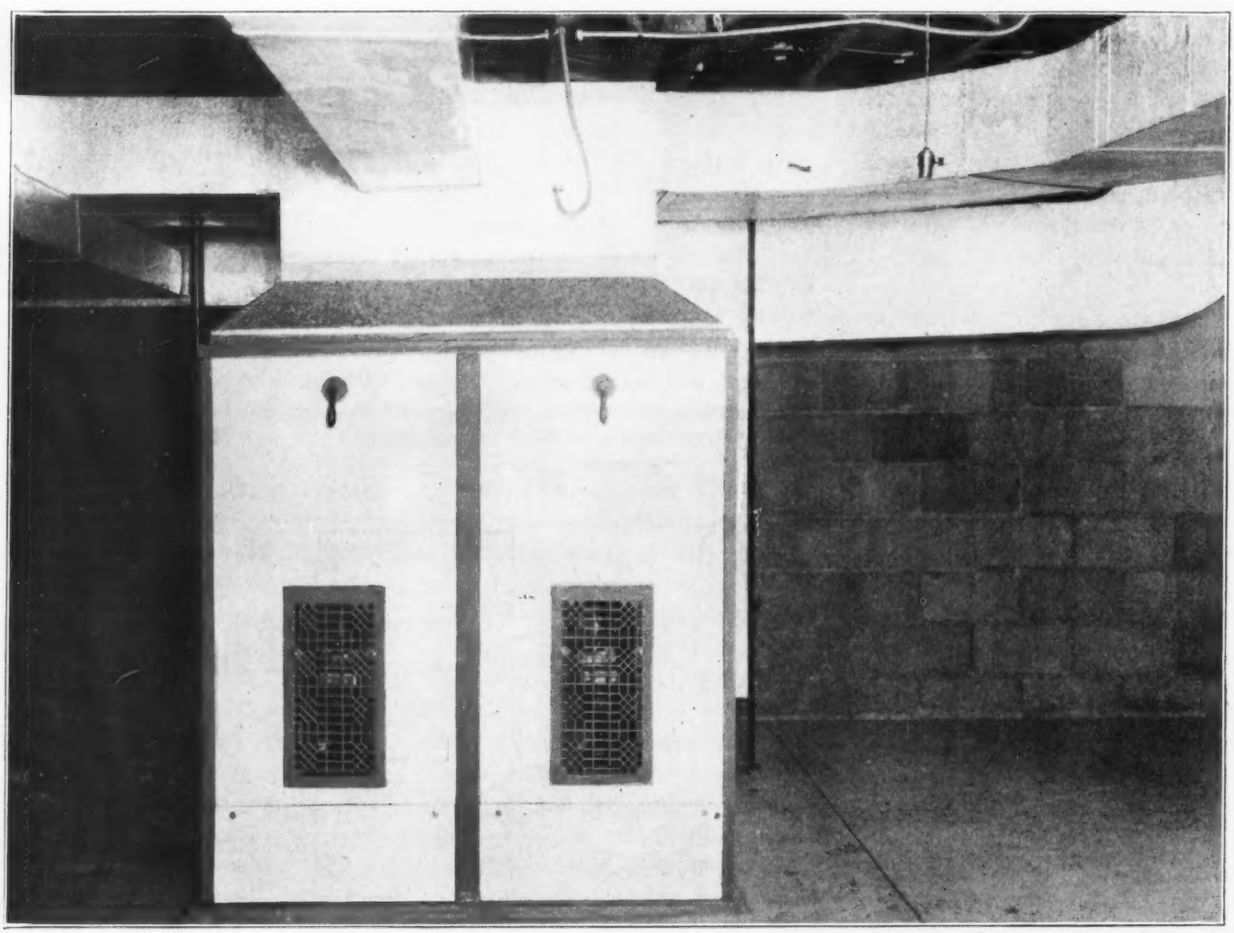
Second Floor Plan of the Laurence Rust Residence Showing Location of Warm Air Registers and Their Relation to One Another With Regard to Balance of System. Note There Are Two Bath Rooms to Heat on This Floor

industry's product when properly merchandised can put competitors' products in the shade.

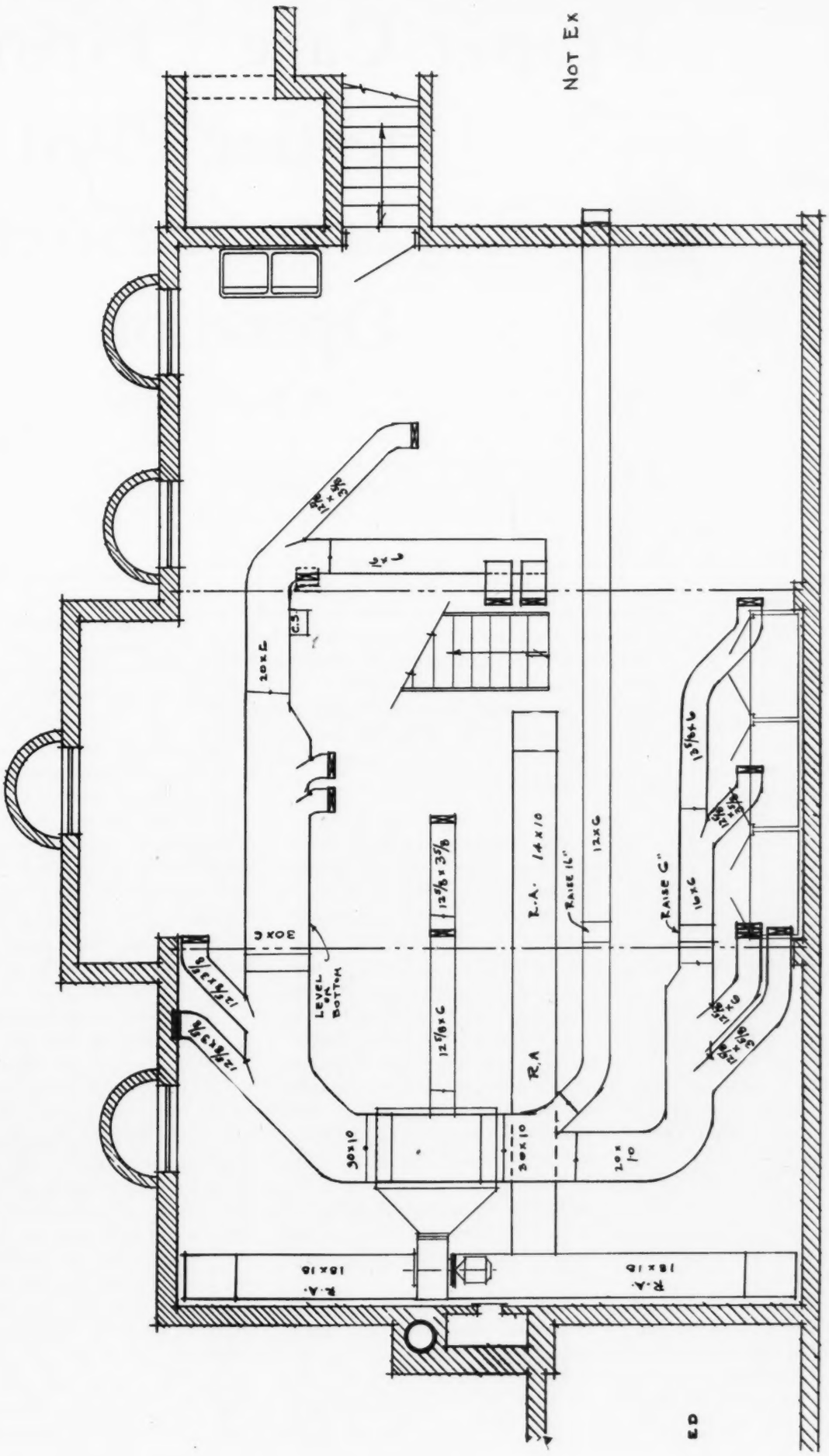
Any furnace installer who is of the mind to do so can take the articles appearing in this issue of AMERICAN ARTISAN and show them to prospective customers. In this way sales resistance born of skepticism can be easily broken down.

It is material of this kind that will educate the general public into an ever greater dependence for their heating requirements on warm air. But the public must be told and retold about the merit of warm air heating. Finally a great light will dawn upon them and they will ask to be shown.

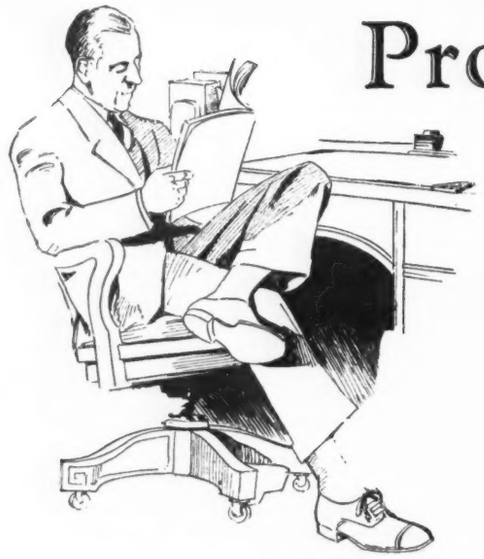
Let's apply some intelligent salesmanship to the marketing of the new type warm air heating system as we know it and are selling it today.



Basement View of the Laurence Rust Home, Showing White Enameled, Gas-Fired Warm Air Furnace and the Duct Work Necessary to Convey the Heat to the First and Second Floors. Note the Manner of Taking the Rectangular Ducts Off the Bonnet of the Furnace. Note also the Sufficiency of Head Room Under the Ducts



Basement Layout in the Laurence Rust Home, Showing How the Trunk Lines Radiate Out From the Furnace and Deliver the Air to the Various Parts of the House. The Duct Sizes Are also Given on This Plan. The Unexcavated Portions of the House Do Not Show on the Plan



Proper Care and Firing of Heating Plant Requisite to Efficient Operation

By R. D. Leonard

MR. LENARD is a Combustion Engineer connected with the Pittsburgh Coal Company, Pittsburgh, Pennsylvania, and the editor of American Artisan was very fortunate in getting him to consent to give us an article on the correct firing and care of heating plants.

Reprints of this article could be distributed among the customers of every warm air furnace installer with good results. It is through the dissemination of such information as is contained in this article that the furnace installer can do a great deal in making the heating plants of his customers give the service that is expected of them.

YOU have furnished new equipment, no doubt, to many people who have after a short time told you that your installation was unsatisfactory. As an exaggerated case, something to argue about, let us suppose that the weather conditions during the interval of time are the same and that the person shoveling coal and the coal itself has remained constant. In other words, the only thing new over last year's conditions is the furnace that your company has supplied to the customer.

The customer complains that this coal does not burn up, or he does not get his heat, or his cellar is too cold or too hot, or whatever reason he may have. In all probability this customer has not analyzed the situation. He is probably trying to run the new gear shift Ford like the old model "T." He has the same hills to climb and the same gas and he expects it to run the same way. Would he expect to get the same results? The answer is obviously "No." You have got to handle your car a little differently.

The same thing holds true for the furnace. Because of this different installation, the draft may enter the furnace at a different point and may, because of this changed opening, have a different effect on the fuel bed. The furnace may be constructed a trifle different, giving an increased or decreased volume for the gases to dissipate in, and the connecting pipe from the furnace to the chimney may be shorter, longer, or of various size. These conditions greatly differ the reaction of obtaining heat from coal. Each of your customers who has a new installation must ascertain the effect of the probability of a change of draft, both as is caused to the underside of the fuel bed and the resulting effect through the pipe to the chimney.

This seems to be the place to enumerate the operations which should be followed in the daily attendance of a man's furnace, in order to derive the most benefit from the coal that he is using and the equipment that he has at his disposal.

Daily Attendance

Morning — Close check damper. Open smoke pipe damper. Shake out ashes until fire glow appears, but do not shake out live coals. Remove ashes from ash pit at once. Close ash pit door and open ash pit draft damper. Break up masses of coked fuel but do not add fresh fuel until a good bright fire is obtained. Usually it is well to wait a half hour before adding fresh fuel. The bright coke will usually heat the house for breakfast.

How Fuel is Concerned During Day

Setting Fire for the Day—Push the bed of live coals toward the back of the furnace and away from the base of the fire door, leaving a deep depression beneath the fire door. Then fill this depression with fresh coal, taking care not to cover the live coals heaped up at the back of the furnace. The gases rising from the fresh coal can thus be burned, giving the maximum heat with a minimum of waste escaping up the chimney. Close ash pit damper. Close smoke pipe damper part way. Open check damper. When more heat is wanted, close check damper,

open ash pit draft damper. Add fuel when needed.

Fuel Bed—Below I am listing a few of the salient points to be taken care of in the fuel bed, that is, where the fire is. These must necessarily be generalized, because no two furnaces are alike.

Uneven thickness. Have the fire level when you are through firing. Do not have any holes coming up through the fire, particularly around the edges of your furnace.

The question of draft and of air at the top of the fire must be obtained by experimentation.

Fire at regular intervals as nearly as possible, anticipating when you are going to need heat. Do not go down at 8 o'clock in the evening and expect to have a warm house immediately your return upstairs. Start thickening the fuel bed at 6 o'clock and then at 8 o'clock open up your dampers and let the air unite with coal to form heat.

Always fire the green coal from your coal bin into the front of the furnace, so that you will always maintain red hot coals between the green coal and the chimney. The reason for this is that the gases are burned out of the coal as they pass over the fire and are completely burned to form a smokeless gas.

Furnace Fire Demands Observance of Rules

These rules, if they can be called such, are necessary to follow. For example, a man may know that he cannot eat tomatoes because of the effect that it has on his stomach and that they will cause him to be ill and therefore lose energy to perform his daily tasks. A man must be fed the proper food at regular intervals in order to do his best work. Why not treat your furnace in a rather humane manner and take good care of it. About 95 per cent of the troubles resulting from new equipment are due not to the equipment but the manner in which the equipment is cared for and the manner in which it is used. It does not take long for ashes to pile up in the ashpit, causing an insufficient amount of air to get to the fire bed. These ashes cause heating of the grates which will eventually burn out. A broken grate allows green coal to slip through into the ashpit and if not properly screened again is of considerable waste.

Soot an Insulator

Take care of your heating furnaces. Soot accumulates quickly and acts as an insulator. You can not expect to heat the air going to the rooms if you have an asbestos wall between the fire and your air. Soot is asbestos, only in another form, and ⅛ inch of this material decreases your efficiency about 28 per cent. Be sure to clean out the chimney and the pipe connecting the furnace to the chimney. If these places are filled with soot it decreases your available draft, which results in poor operation and tends to keep the house less warm. It might be well here to say a few words concerning the things not to do in firing a furnace.

Why Papers Should Not Be Burned

Too many papers burned there will cause soot, which eventually floats up the chimney and down onto the laundry. The ashpit door should invariably be closed, and under no conditions should garbage or papers be burned in the furnace. These cause what is known as clinker troubles. Do not close off the area over the fire. Let some air in. Do not poke or shake the fire any more than is absolutely necessary. Shaking once a day or, in severe cold weather twice a day, is ample. Be sure to have the check damper open when your stack damper is closed.

THERE is no more important observation to make than that the furnace installer see to it that the purchaser obtains a thorough understanding regarding the care and operation of the heating plant after installation. Nothing will pay larger dividends to the installer. A good practice is to make the guarantee contingent upon proper firing and care.

Perhaps a few words might be said concerning clinker trouble. The coal in this district, if properly fired, will not give you any trouble in this respect. Too thick fires, in other words, too deep a fuel bed, stirring the fire with a rod or bar, or banking, that is putting on green coal while you have a white hot fire, will cause clinkers. Burning coal in your ashpit or having too hot an ashpit, or the ashpit filled with ashes will also cause clinker trouble. What clinker is, is moulten ash allowed to cool. The ash becomes moulten because of intense heat next to it. When it becomes moulten on one side it will run and adhere to particles and you know the results on cooling. These are a few things to bear in mind that will remedy this clinker trouble.

It is well to remember that the coal we burn has a low fusion point which means an easy clinkering coal and, therefore, extra care should be taken to avoid this trouble. The coal also has relatively high moisture content and that moisture has to go somewhere, which, of course, you say, goes up the stack, but your pipes are made of iron and rust out in due time. Take the necessary half hour when you shut your furnace off for the year and clean these pipes out well.

Installer Should See Customer Has Full Set of Rules

It is evident from many cases where people wish to get satisfactory results from their furnace and derive every available B.t.u. or dollar that they put in their furnace in heat, that by taking proper care and spending a little extra time, not more than two or three minutes a day, that their furnace troubles and the often known complaints are eliminated.

The man who puts your furnace in knows his business and would not try to install some cheap piece of apparatus that will not work effectively and some time later be compelled to take that equipment out at his own expense.

It is imperative that the customer fire and care for his furnace in the manner to receive benefit both from the coal and from the furnace in order to have a warm house in the middle of winter. See to it that he does.

Gravity-Forced Air Combine to H Buil di

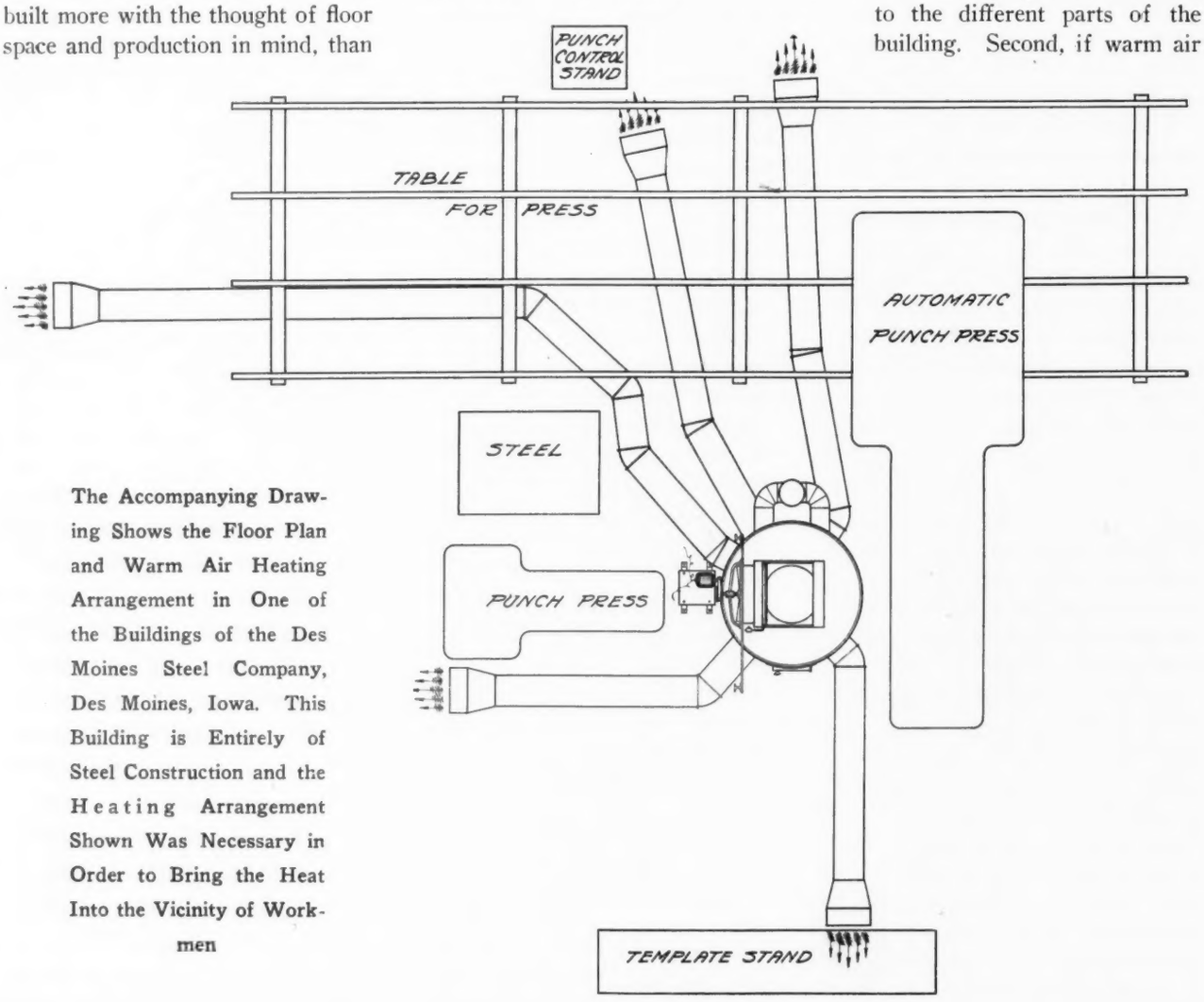
By E. H. GU

TIME and conditions alter circumstances and so it is with the job described on this page.

In this particular case there appeared several reasons why an ordinary gravity type of job could not be installed. The building in which this installation is located is of an enormous size, being one of the main buildings of the Pittsburgh-Des Moines Steel Company of Des Moines, Iowa. This building in which structural steel, bridge work, and tanks are turned out, has an extremely high calling for the operation of overhead cranes, and was built more with the thought of floor space and production in mind, than any thought of a saving in heat losses. Consequently to attempt to heat the entire building would be futile, due to the fact that so much of the building is not actual working space, and that much of the space in the building is occupied by large steel beams and boiler plates.

It was decided upon to place a heavy duty heater among a cluster of machines and throw heat over the operators of these machines, rather than to attempt to heat the whole section of the building in which the men work. On the floor plan accompanying this article you will notice the location of these workmen at the shearing mill, punch press, automatic punch control stand, template stand, and at the foremen's desk.

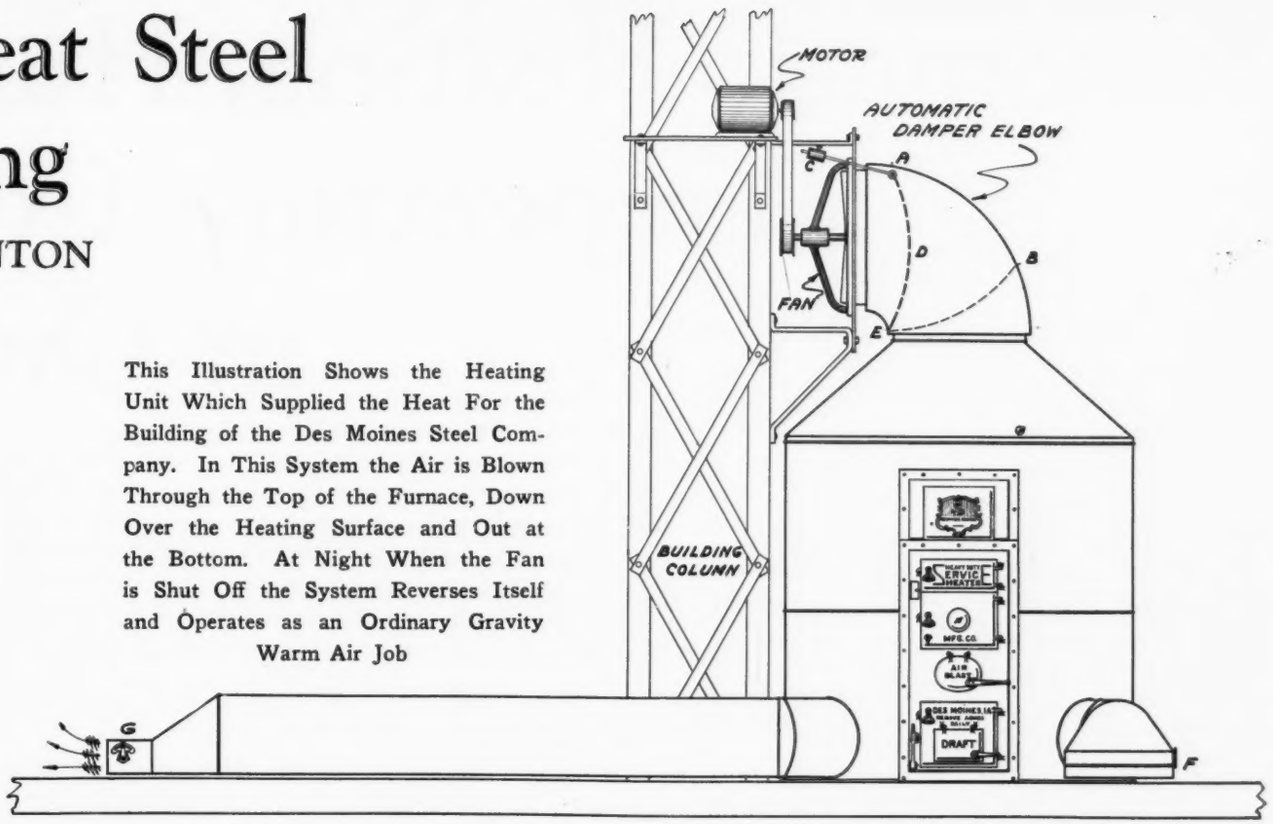
As already stated, after having decided upon the location of the heater there appeared several reasons why the installation would have to be something different than an ordinary gravity type of job. First, pipes running overhead to the different machines would interfere with the operation of cranes carrying sheets of steel to the different parts of the building. Second, if warm air



The Accompanying Drawing Shows the Floor Plan and Warm Air Heating Arrangement in One of the Buildings of the Des Moines Steel Company, Des Moines, Iowa. This Building is Entirely of Steel Construction and the Heating Arrangement Shown Was Necessary in Order to Bring the Heat Into the Vicinity of Workmen

to Heat Steel uil ding

E. H. GUNTON



This Illustration Shows the Heating Unit Which Supplied the Heat For the Building of the Des Moines Steel Company. In This System the Air is Blown Through the Top of the Furnace, Down Over the Heating Surface and Out at the Bottom. At Night When the Fan is Shut Off the System Reverses Itself and Operates as an Ordinary Gravity Warm Air Job

was blown from above on to the men, it would be quickly dissipated in the cold cubic contents surrounding unless a high pressure was used to blow the warm air downward. This would be impractical with the fan located at the floor line as is customary, for the building has a dirt floor, and all the dirt and dust would be picked up and blown over the men.

Therefore, it seemed that the only logical way to overcome these conditions was to invert the job; blowing the cold air in at the hood of the furnace and taking the warm air away with pipes connected at the bottom of the casing. On the floor plan you will notice that five 14-inch pipes were taken from the bottom of the casing and run to the various machines so that the warm air could be spread at the operators' feet by means of a diffuser. The elevation plan shows more clearly than the floor plan the manner in which the cold air was blown into the hood. This was affected by means of a twenty-four inch fan capable of moving four thousand cubic feet of air per minute. Since the fan is over six feet from the floor, there is no dust blown through the installation and upon the men.

As so far described, this job would be purely a forced air job and it would be necessary to run the fan day and night, in order to protect the heater. After working hours there would be no necessity to throw air to the different machines, therefore, a special elbow was constructed between the fan and the heater so that when the fan was cut off, the job might reverse itself and work as an ordinary gravity job. In this way no damage would occur to the heater by lack of circulation of air. On the elevation plan you will notice the elbow at the top of the heater, showing the damper by the dotted line marked D, the counter-balance marked C, and the opening in the top of the elbow marked AB. The damper D is so counter-balanced that when the fan is running, the pressure produced throws the damper D across the opening AB and the cold air passes through the casing of the heater and out the opening F and G. In a reverse manner when the fan is shut off, the damper D drops down to the point marked E, leaving the opening AB clear so that air entering at the points marked F and G can pass through the casing and escape out of the opening AB and not in any way pass over the fan.

The facts presented in this article indicate the extreme flexibility of the warm air heating system and also its unlimited utility.

The reason for blowing the air through the top down through the furnace instead of through the ordinary way makes a very interesting story. Much can be learned here about factory installations.

Such an arrangement not only protects the heater, but also prevents the warm air from drying the grease out of the fan and ruining it.

In checking over the results of this job and summing it up as a whole, it seems to be a very practical installation for it accomplishes the purposes for which it was desired. Mainly that it warms the operators of the machines; second, it utilizes floor space under the press tables, that would otherwise be wasted and third, it does not interfere with any overhead space around the machines.

Automatic Heating, Humi Temperature Contr in One S

By A. C. WA

THE accompanying plans and specifications are for a complete air conditioning system for residences. They are as complete as that used in the modern school or theater, with the single exception of refrigeration for cooling. It is so arranged that a cooling system may be added later whenever there shall be a practical system on the market.

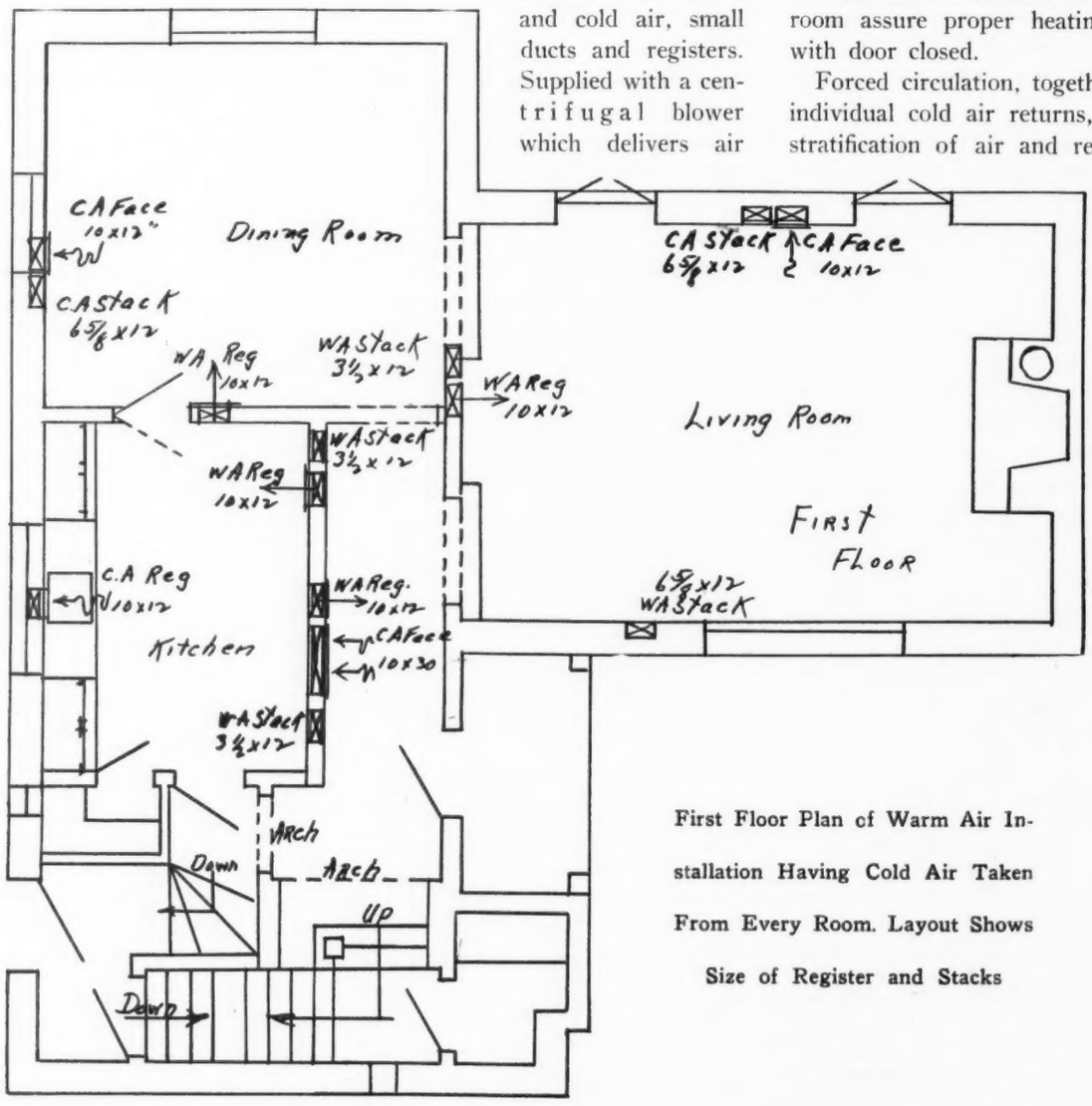
Briefly, construction is as follows:

It is designed to operate with forced circulation, allowing use of trunk line for warm and cold air, small ducts and registers. Supplied with a centrifugal blower which delivers air against resistance, estimated on the layout at one-fourth inch water gauge. Propeller type fans are recommended only as boosters for gravity jobs.

Positive delivery of conditioned air to each and every room.

Individual air returns from every room assure proper heating, even with door closed.

Forced circulation, together with individual cold air returns, lessens stratification of air and results in



First Floor Plan of Warm Air Installation Having Cold Air Taken From Every Room. Layout Shows Size of Register and Stacks

midifying, Air Filtering and ontrol Now Possible he System

A. C. WALTERS

more even temperature between floor and breathing line.

Drafts on the floors are eliminated. Cold air returns are placed at strategic points so infiltration can not flow across floor.

A gentle continuous movement of the air throughout the entire house. Air circulated three to four times per hour.

The air is automatically humidified as it passes through the furnace casing.

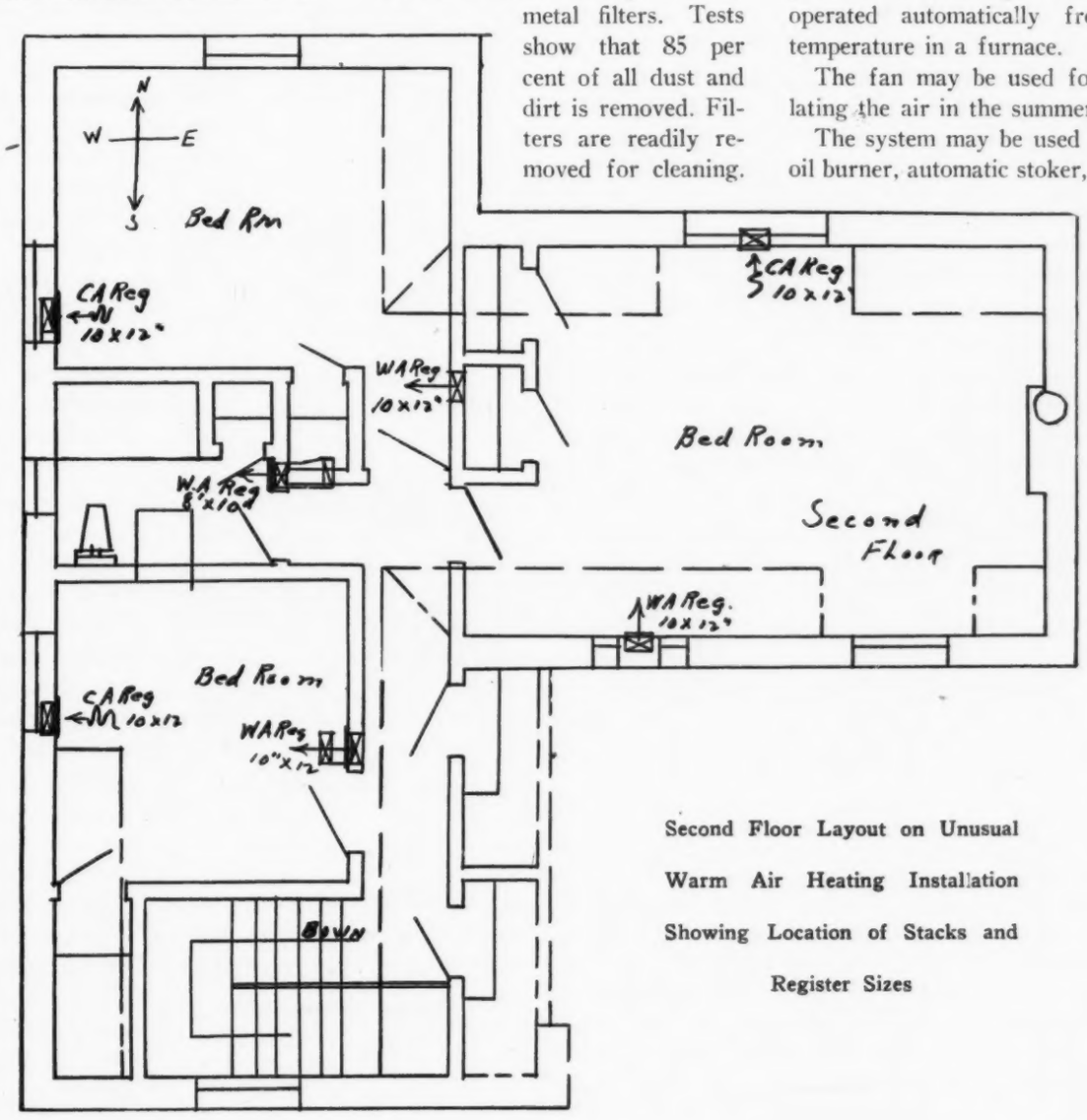
All air is filtered through sanitary metal filters. Tests show that 85 per cent of all dust and dirt is removed. Filters are readily removed for cleaning.

Ozonator kills all organic odors, including tobacco and cooking odors. Its action is inhibitory to bacteria.

Completely automatic thermostat controls draft from room temperature. A limit control in the furnace prevents overheating. The fan is operated automatically from the temperature in a furnace.

The fan may be used for circulating the air in the summer.

The system may be used with an oil burner, automatic stoker, or with



Second Floor Layout on Unusual Warm Air Heating Installation Showing Location of Stacks and Register Sizes

a gas-burning furnace.

It takes up no space in living rooms and minimum of space in the basement. It may be entirely concealed by using a false ceiling.

The heater may be located anywhere in the basement.

The cost is exceedingly reasonable, considering the many advantages. The plant shown may be installed for $1,200.

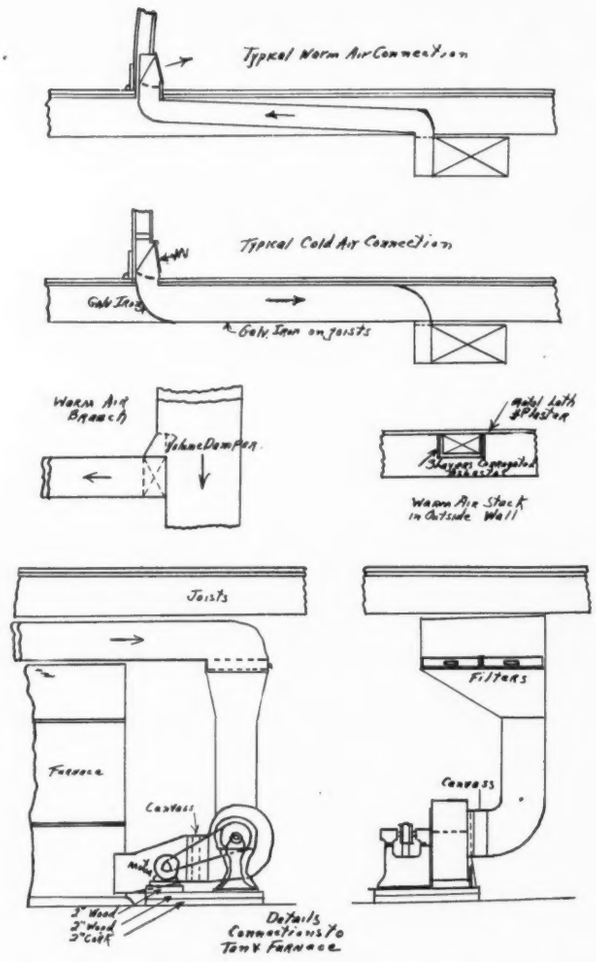
Capacity of furnace at five pounds of coal per square foot of grate, 117,720 B.t.u. per hour. The furnace can be equipped with oil burner, or automatic stoker, or gas-fired furnace.

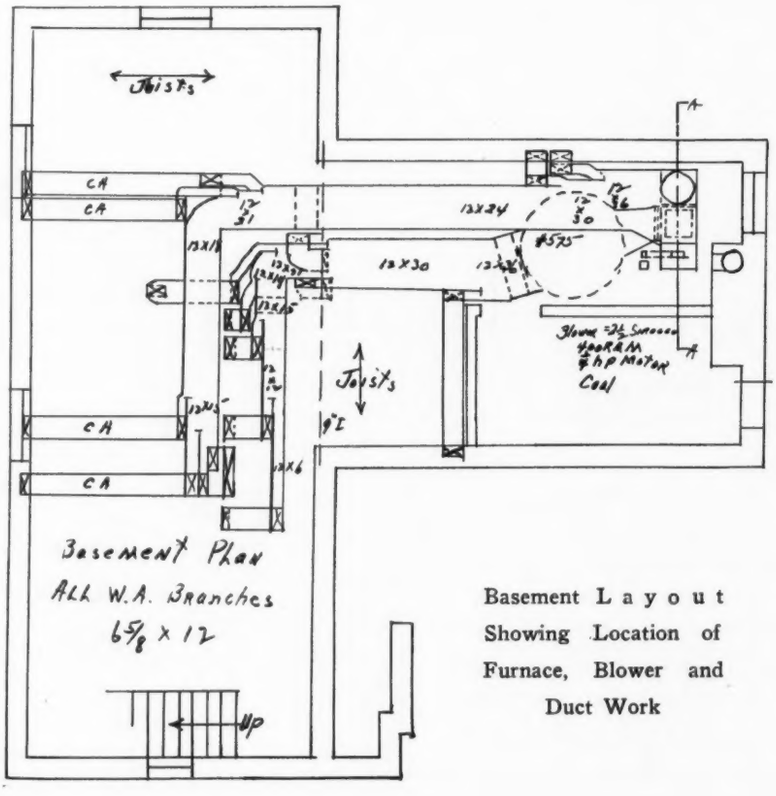
The fan inlet is 15¼ inches, outlet 12¼x15 7/16 inches. Canvas connections to and from fan. Fan mounted on 2-inch cork, 400 r.p.m. brake horsepower 0.10. Delivery 1,240 C.F.M. at ¼ inch S. P., or equivalent to three times volume of house per hour.

The filters consist of two units, 20x20 inches. Made to slide in and out as drawers, tightly fit to prevent bypass or air entering from basement.

The fan control is automatic, effected by means of a mercury in the bonnet

The humidifier consists of two cast iron water pans, enameled inside and out, as well as frames and covers, with an automatic float valve.





Basement Layout Showing Location of Furnace, Blower and Duct Work

Gas Industry Seen in Steady Growth

Expansion into new fields of usefulness and a most extensive development of existing markets has marked the year 1929 in the gas industry of the United States, according to a statement issued on Monday of this week by B. J. Mullaney, president of the American Gas Association.

"The indications for the year 1930 are that this growth will continue during the new year in about the same ratio as that of the year just closing," said Mr. Mullaney. "This anticipated growth is predicated upon the new trends and changing conditions, such as the increase of large-volume industrial use of gas, accelerated use of gas for additional domestic purposes, including central house heating and refrigeration.

"Expansion is further stimulated by the growing popular recognition of the superior advantages of gaseous fuel, and by the continuous program of research, conducted by the American Gas Association, that is developing new uses and greater efficiencies and economies in methods of utilization."

Utica, New York, Includes Code in New Building Ordinance

On December 18 the Common Council of the city of Utica, New York, passed without a dissenting vote a new building ordinance which has been in the course of preparation for a year under the direction of Hubert E. Collins, mechanical engineer.

The ordinance as passed includes the Standard Code for warm air heating. This is a distinct advance

Check Chimney for Faults Before Making Installation

THE Committee on Construction of Buildings of the National Board of Fire Underwriters has prepared a "Standard Ordinance for Chimney Construction" providing for minimum requirements for proper and safe construction of chimneys, flues and fire places and suitable for use in cities and towns of any size or as a state law.

The initial edition of this valuable work came out in 1920. Since then it has been twice revised, and it has been approved by the National Warm Air Heating Association, the American Society of Heating and Ventilating Engineers, the Heating and Piping Contractors' Association, the National Brick Manufacturers' Association, the National Boiler and Radiator Manufacturers' Association and by several recognized bodies in the clay and lumber industries.

Every warm air furnace installer who has not already done so should secure a supply for distribution among customers who hesitate about bringing their chimneys into complete repair. They can be had from American Artisan.

FAULTY chimneys perhaps contribute more to the cause of failure of the warm air heating system than any other single cause. Consequently every furnace manufacturer and installer should be vitally interested in making sure that each furnace installed is hooked up to an adequate, well constructed chimney. In fact, many furnace installers recognize the trouble that can arise from this source so that they have taken a firm stand and have refused to install their product where the owner is not willing to give them a chimney that is air tight, of adequate height, and otherwise of good construction. They are absolutely right in this stand.

We all know that fuel, in burning, requires a known amount of oxygen, and this oxygen is secured from the air which must pass through the fire and up the chimney after certain chemical changes take place. For this reason the mixture passing out of a furnace smoke connection and up the chimney is termed gases because it consists of several different gases in mixture such as carbon monoxide (CO), carbon dioxide (CO_2), and nitrogen.

Now every pound of coal or gallon of oil requires a certain amount of air, so that the necessary quantity of oxygen will be secured and complete combustion take place. If less air is supplied, incomplete combustion results, and if too much air is supplied, excess air is handled which has a cooling effect upon the fire.

Of the two evils, excess air is the lesser, so that it is better to have too much air than not enough. With a given minimum of air required, a certain quantity of gas will develop and the chimney area must be sufficient to handle this volume.

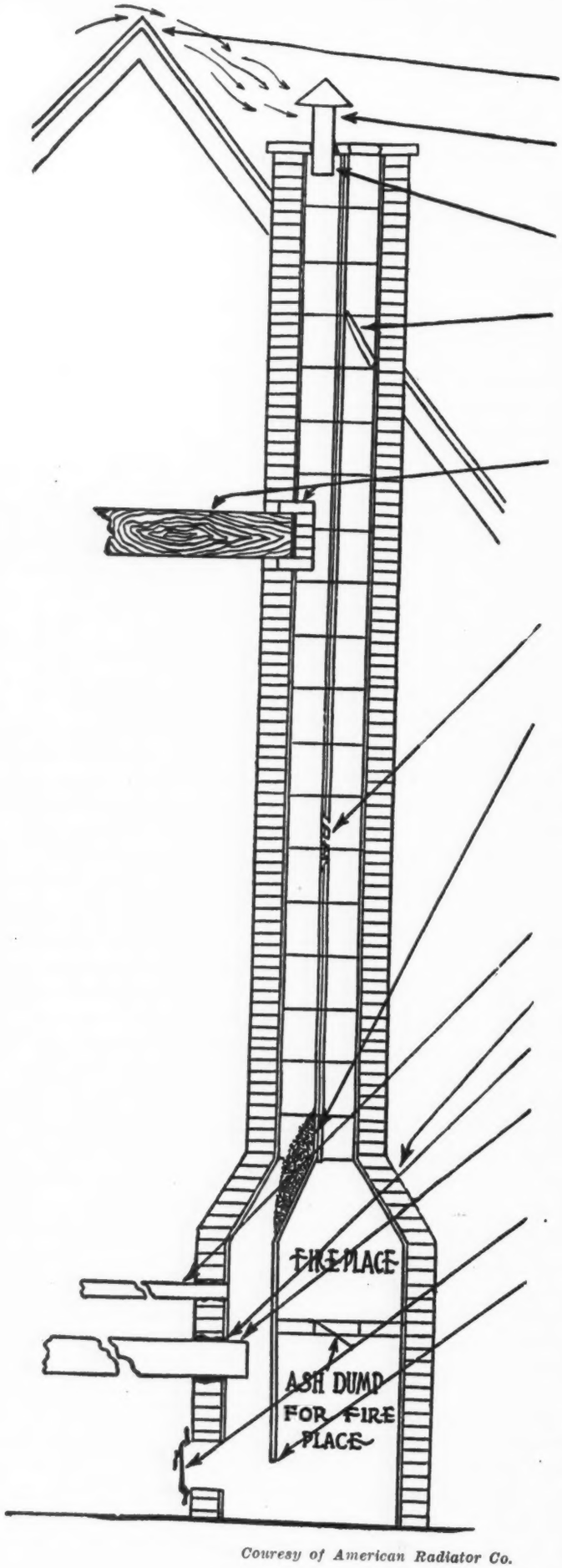
It is well known that air movement sets up friction losses, these losses being caused by the air rubbing on the sides of the container through which it moves. It must percolate through the fire bed, pass the combustion chamber and out of the smoke outlet to the chimney. Friction is being developed all along the line. What motive power creates the draft? A study of this will give the reason for a tight chimney requirement.

The chimney draft must be of sufficient intensity to overcome all these resistances and still permit sufficient velocity so as to handle the volume of flue gas required. Thus, it will be seen that intensity of draft is quite different from volume, and as the volume largely depends upon the chimney area while the intensity depends on its height, the difference between the size of the chimney and the height of the chimney is plainly apparent.

Yet there is also a relation between these two, for it will be seen that if a high chimney will give a greater intensity, it will also give a greater velocity to the gases, and a smaller chimney at a greater velocity can handle just as great a volume of gases as a larger chimney with a lesser velocity.

Draft in a chimney is measurable by the difference in temperature between the warm gases in the chimney and which cause the gases to be lighter than an imaginary column of cold air of equal height.

For example, the weight of a cubic foot of air at 62 degrees is approximately 0.0761 pound. The weight of a cubic foot of air at 500 degrees is 0.0414 pound. The difference in weight is, therefore, 0.0347 pound, and a chimney 40



Courtesy of American Radiator Co.

Trouble	Disclosed by	Remedy
Top of chimney lower than surrounding objects.	Observation.	Extend chimney above all objects within 30 feet.
Chimney cap or ventilator.	Observation.	Remove.
Coping restricts opening.	Measurement.	Make opening as large as inside of chimney.
Piece of broken tile wedged in chimney.	By lowering a light or a weight down chimney.	Break tile with a rod or weight on a string or wire.
Joist protruding into chimney.	By lowering a light or a weight down chimney.	Change support for joist so that chimney will be clear.
Leakage between loose-jointed tiles.	Smoke test. (Start smoking fire with top of chimney closed. Look for leakage from chimney)	Rebuild chimney with a course of brick between flue tiles.
Debris accumulated in offset.	By lowering a light or a weight down chimney.	Break out with rod or weight; may be necessary to open chimney.
Heater or ventilator connection.	Observation.	Remove.
Offset.	By lowering a light or a weight down chimney.	Change to straight or to long offset.
Loosely fitted smoke pipe.	Smoke test.	Close leaks with cement.
Smoke pipe extends into chimney.	By lowering a light or a weight down chimney.	Make end flush with inside of chimney.
Loosely fitted cleanout door.	Smoke test.	Close leaks with cement.
Opening between flues.	Smoke test.	Close openings permanently.
Chimney too small.	Measurement.	Rebuild.
Chimney too large.	Measurement.	Rebuild.
Chimney too short.	Measurement.	Extend.

feet high would have a pressure exerted on its base of 40 times 0.0347, or 1.388 pounds per square foot of its cross-sectional area. This difference in pressure will cause the gases in the chimney to rise at a rapid rate. Cold air impelled by the pressure of 1.388 pounds per square foot will pass into the chimney. For the present it is presumed that it can only pass into the chimney through the fire in the furnace.

When air passes through a bed of burning coal a multitude of changes take place. Certain portions of the coal are converted into a number of gases which ignite at varying temperatures. When they are released as gas and are in contact with the right amount of air at the requisite temperature they ignite and in burning yield definite quantities of heat.

If the draft of the chimney is not strong enough, or the area large enough to cause sufficient air to pass through the dense bed of coal, a portion of the liberated gases will pass unburned out of the furnace by way of the chimney into the open air. It is obvious that the heat which the lost gas might have made is a loss of fuel.

Other portions of the coal do not gasify before burning but unite directly with the oxygen in the air. If only half enough air is drawn into the furnace, the fuel will ignite, become a gas and give up heat; but the amount of heat created will only be about one-third as much as though the proper amount of air had been admitted. The loss of heat in both of these elements in the coal is due to a lack of air to finish the combustion.

There are other sources of loss of fuel, but these two are definitely related to the chimney. If a well-constructed chimney is of proper size and height to create the draft necessary to pass the right amount of air through the coal, the fuel loss referred to should not occur.

If, however, the chimney is faulty in construction, even though properly designed, it will not "draw" the fuel. These faults are legion.

Draft losses is the term used to express the friction built up in different portions along the line of gas travel. The sum of all of these losses will give the draft intensity which is usually expressed in inches of water. But what is the chimney draft?

Another variable which enters into chimney design is the temperature of the chimney gases. These gases will be of a higher temperature when both the chimney and furnace are fully loaded because a furnace run at, say, a 100 per cent rating carries a hotter fire and a more rapid movement of flue gas than when running under only partial load. Likewise, when a stack is being used up to its full capacity a large volume of hot gases is passing upward through the chimney and the drop in temperature as the gases pass up the stack will be less than when a smaller amount of gas at a lower velocity is flowing.

The outside temperature also plays an important part as, the lower the outside temperature, the greater the difference between the temperature in the stack and the temperature outside. Of course, the greater this difference is the more intense will be the tendency for the hot gases to rise and the greater will be the draft produced.

This is a very fortunate arrangement as far as heating chimneys is concerned, for they are at their very best, as far as draft intensity goes, when the heating load is greatest. Take the case of an extremely cold day; the furnaces then are under their heaviest load, the gases delivered into the chimney will at this time be at the highest temperature, the amount of fuel consumed will be at the maximum, so that the volume of gases will be at a peak and at the same time the outside temperature is at a very low point so that this will assist the chimney action by giving the highest possible temperature difference between the temperature in the chimney and the temperature outside.

Whereas, in a 35-degree Fahrenheit outside temperature the furnace would be running at only about 50 per cent of rating and might be delivering flue gases at, say, 400 degrees Fahrenheit into the chimney, while the chimney velocity is only about half of its maximum, resulting in the gases taking twice as long to pass up through the chimney, so that when they reach the top of the chimney they would be cooled, say, to 300 degrees Fahrenheit. This would make the difference between the inside chimney temperature and the outside air 315 degrees Fahrenheit.

But on a zero day with all the fires going with drafts open, the temperature of the furnace gases might go to 525 degrees Fahrenheit and the increased velocity in the chimney might result in their cooling to 475 degrees Fahrenheit, making the average chimney temperature 500 degrees Fahrenheit, and the difference between the chimney temperature and the outside 500 degrees.

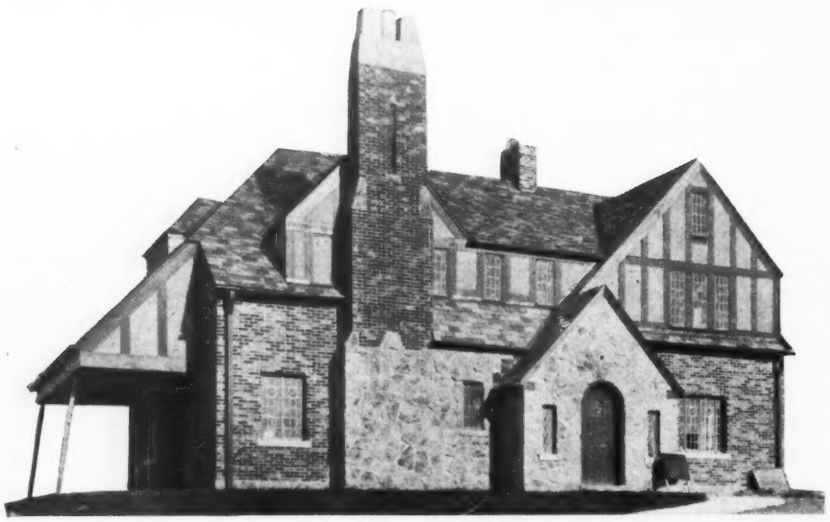
It readily can be understood how much this will improve the draft over the 315 degrees difference at 35 degrees Fahrenheit outside.

Owing to the heating load being greatest with low outside temperature, this is the time to be considered, for a chimney which is adequate under the biggest load will also be adequate under lesser loads because the load falls off faster than the temperature difference.

With this explanation it should be readily understandable why it is necessary to have a tight chimney of adequate height and size, in order to secure the best efficiency of operation.

It would seem to me that if I were a furnace installer, the first thing I would do when asked to bid on a new furnace job before I did anything else, would be to test the chimney for draft tightness and for obstructions on the outside that may lead to trouble. If every furnace installer would take the trouble to do this, he would avoid a great many complaints after the job is installed.

It is easy to see why chimney faults can lead to so much trouble. Where they exist the complaint is going to be chronic and to lead to permanent dissatisfaction.



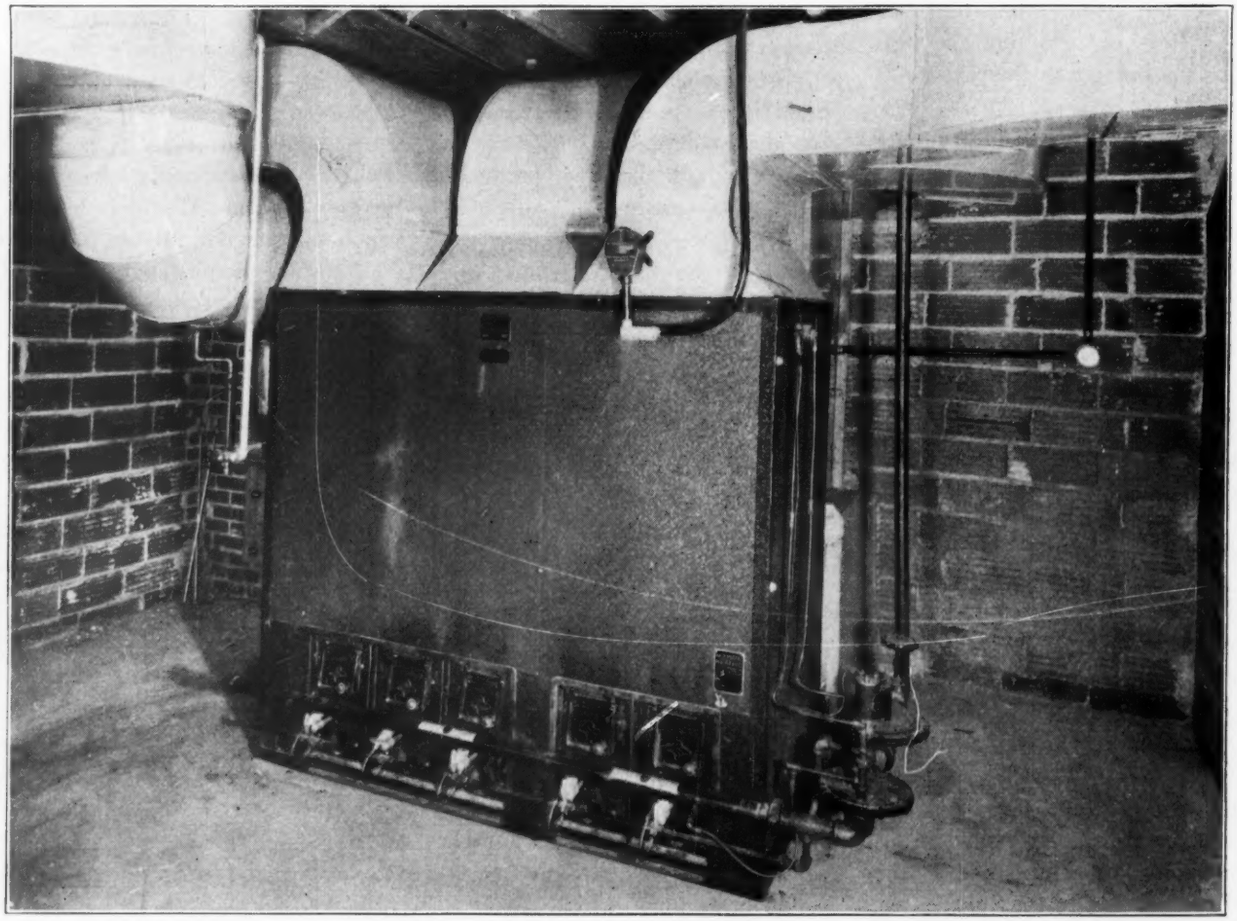
Exterior View of the Home of Everett E. Taylor, President of the Toledo Printing Company, Toledo, built by the D. A. Spitznaugle Construction Company of Toledo. In Recommending the Forced Air System to a Home Owner, Mr. Spitznaugle Feels That he Renders Invaluable Service

Showing What It Have Best chandise

By J. C.

"CREATING an Atmosphere" is the heading of an article in the *Woman's Home Companion* for November, 1929. This heading could be readily changed to "Selling Warm Air Heating" without changing it in the least, except the first heading indicates what the public wants or should have as outlined by an intelligent woman writer, whereas in the second case the heading would apply to the logic of an up-to-date warm air furnace man in trying to sell his system.

The furnace man would probably



View of the Heater Room Showing Gas Heater Control Valve Regulator, and the Manner in Which the Air Ducts Are Taken Off the Top

Public Should Way to Mer- Warm Air

J. C. MILES

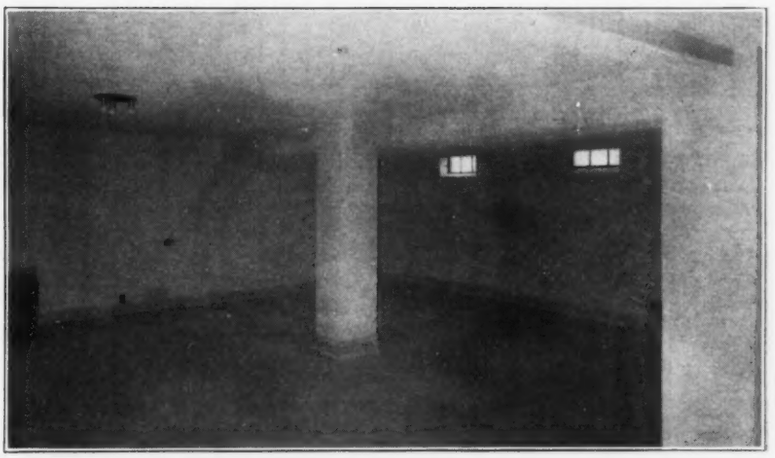
An Exterior View of the Schmidlin Brothers Company Shop, Showing the Floodlight Sign, Painted in Four Colors. The Design and Wording of This Sign Are Both Attractive and Illuminating

can cease to worry about the air we breathe. The animal body is constantly producing heat. When it gets too hot for various cells to work efficiently, the skin is flushed, that is, the blood is thrown to the surface where it is cooled by the air. The feeling of discomfort and lassitude which we experience in a hot room is believed to be caused, in part at least, by the withdrawal of blood from the brain to the blood vessels of the skin. At the same

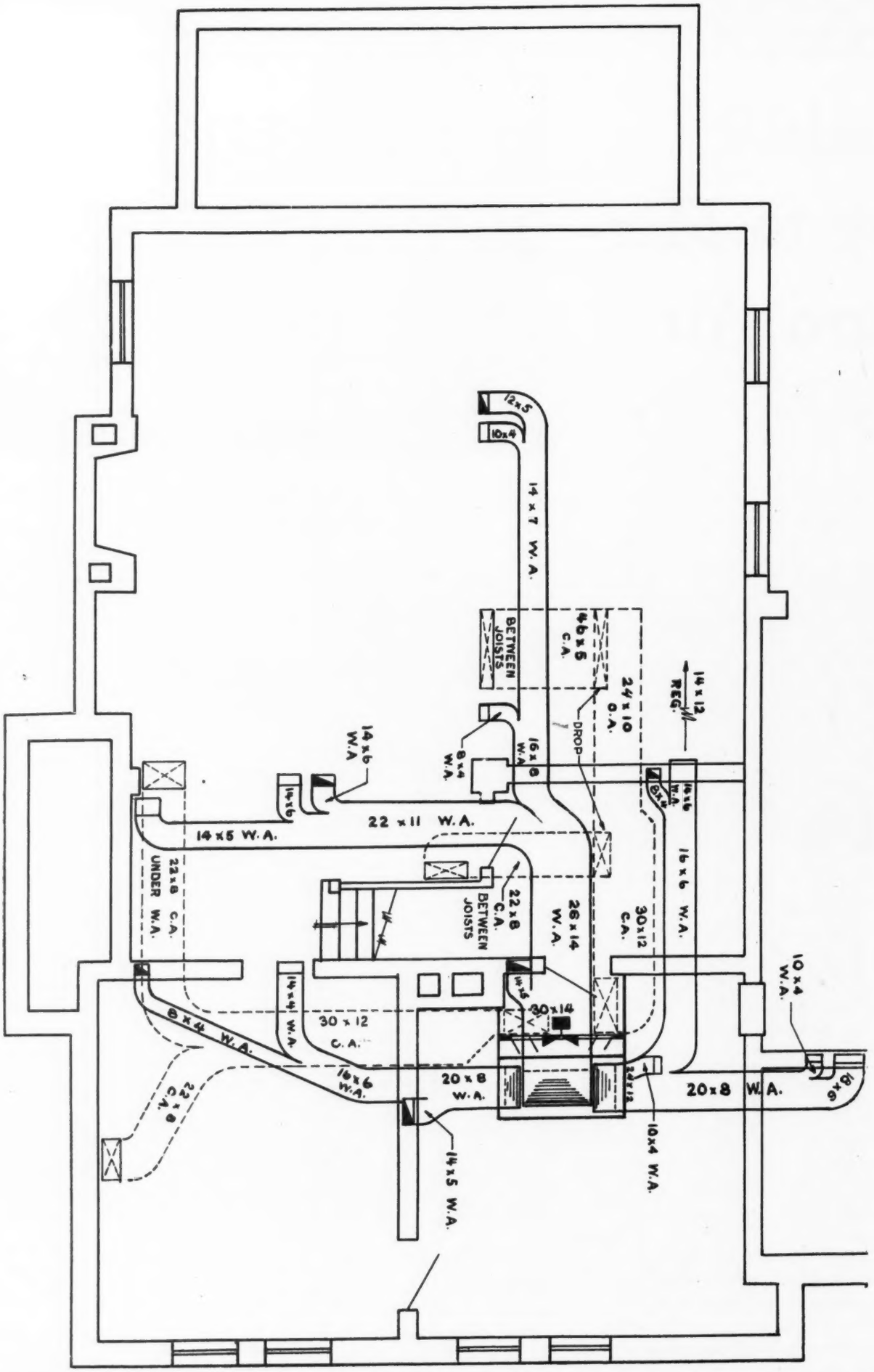
use a little different phraseology, but the sense would be the same. The up-to-date furnace man would say that convection heat (warmed air), air motion and humidity are the three essential requisites to health and comfort—that the theory of poisonous air is a fallacy—that it is not the effect of bad air on the lungs that causes discomfort, but its effect on the skin. "The new order of things," he says, "is higher floor temperatures and lower ceiling temperatures, better temperature equalization of floor and ceiling."

To quote from the above magazine article, "Creating an Atmosphere":

"With temperature, humidity and air currents properly adjusted, we



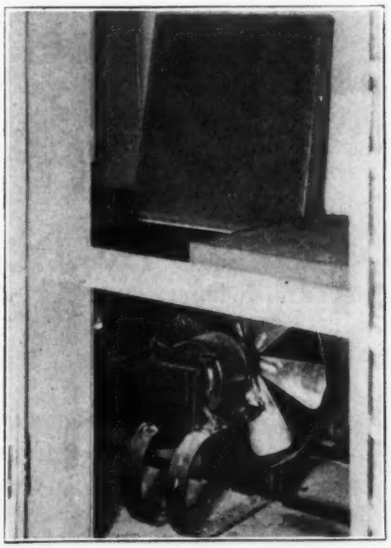
Two Illustrations of Plan of the Basement of Taylor Residence Showing the Location of the Heater, Cold Air Chamber, and Fan Compartment, and Trunk and Branch Line Duct Work, with Special Attention Paid to Avoidance of Ducts on Ceiling of the Billiard Room. The Ultimate Success of This Is Shown by Illustrations of Billiard Room Which Are Entirely Free from Obstruction on the Ceiling



Basement Plan Layout of Forced Warm Air Heating System Installed by Schmidlin Bros., Toledo, Ohio, and Indicating Duct Work, Their Sizes, Location of the Furnace and the Fan

time the sweat glands produce moisture which evaporates and cools the skin. If the air in the room is warm and dry, evaporation takes place quickly, which explains why it is perfectly possible to feel chilly in a much over-heated room."

Then to quote still further: "A fact that we very rarely take into account in considering our heating problems is the difference in conditions at different levels in the room. Hot moist air rises, cool air sinks, consequently our feet are kept cold and our heads hot, etc., etc."



Interior of the Fan Room, Showing a Low Speed Fan and Five Sections of Furnace Filters, Made Accessible by a Full Length Door at the Rear of the Cold Air Chamber

All of which points the way to the intelligent warm air furnace man, because what he has to sell is precisely what is required to produce the desired effect.

One of the outstanding progressive heating contractors in the central west (and the central west is now the vanguard of heating progress) is Schmidlin Bros. Co. of Toledo, Ohio, to whom we are indebted for the fine outlay of photographs accompanying this article. The pictures of these fine homes using the Schmidlin air conditioning systems are monuments to the intelligent pioneering of Schmidlin Bros. and their very fine organization.

The accompanying line drawing of a basement piping system, showing the heater location and trunk line layout, is a typical example of the scientific manner in which the problem is approached, and it is very much to their credit that all air conditioning systems are handled in this thorough and scientific manner.

The public's realization of the importance of proper air conditions in the home, coupled with the changed conditions in women's wearing apparel and their refusal to make any distinction between winter and summer, makes it imperative that more and more warm air heating men learn the art of proper air conditioning, as well as the art of letting people know about the advantages of air conditioning.

Glass Letters

From Joe Wood, 2458 Main Street, Anderson, Indiana.

Please tell me where I can get glass letters for electric signs.

Ans.—Opalite Sign Company, 201 East Ohio Street, and Geo. Steere & Sons, 434 South Dearborn Street; both of Chicago.

Electric Room Humidifiers

From Leo A. Tilford, Jackson, Michigan.

Kindly advise me who makes electric room humidifiers.

Ans. — Universal Humidifying Company, 2013 Sansom Street, Philadelphia, Pennsylvania, and American Air Purifier Corporation, 165 East 35th Street, New York City.

Old Lead and New

From Owensboro Sheet Metal Works, 900 West Ninth Street, Owensboro, Kentucky.

To whom can we sell about 600 or 800 pounds of sheet lead that came out of a baptistry? Also, where can we get the same quantity of new lead for relining the new baptistry?

Ans.—National Lead Company, 722 Chestnut Street, St. Louis, Missouri, and S. Birkenstein & Sons, 1056 West North Avenue, Chicago, can take care of you on buying the old sheet lead and selling you the new.

Stamped Steel Doors for Auto Truck Cabs

From Louis I. Drackert, Tipton, Missouri.

Can you tell me who makes stamped steel doors such as are used on enclosed auto truck cabs?

Ans.—Morton Manufacturing Company, 5105 West Lake Street, and Variety Manufacturing Company, 2956 Carroll Avenue; both of Chicago.

Tinners' Raising Hammer

From H. S. Garrigus, Lock Box 348, Youngsville, Pennsylvania.

Where can I buy tinners' raising hammers?

Ans. — Maplewood Machinery Company, 2638 Fullerton Avenue; Friedley-Voshardt Company, 733 South Halsted Street, and Equipment Supply Company, 542 West Washington Street; all of Chicago.

Preparation for Furnace Pipes

From T. O. Westbrook, 1155 South Redman, Marshall, Missouri.

What kind of a preparation is there available to put on over the asbestos paper in covering furnace pipes that will make them snow white?

Ans.—This is liquid asbestos, made by B. & F. Manufacturing Company, 405 Youngerman Building, Des Moines, Iowa.

Top for Chimney of Garbage Incinerator

From Highland Park Sheet Metal Works, Highland Park, Illinois.

Please tell me who can make up for me a top for the chimney of a garbage incinerator 18x20x16 inches high of a very heavy screen material.

Ans.—F. P. Smith Wire & Iron Works, 2346 Clybourn Avenue, and Western Wire & Iron Works, 951 West 18th Place; both of Chicago.

Chimney Brushes

From Granite Hardware Company, 1080 East 21st, South, Salt Lake City, Utah.

Can you tell us who manufactures brushes for cleaning chimneys?

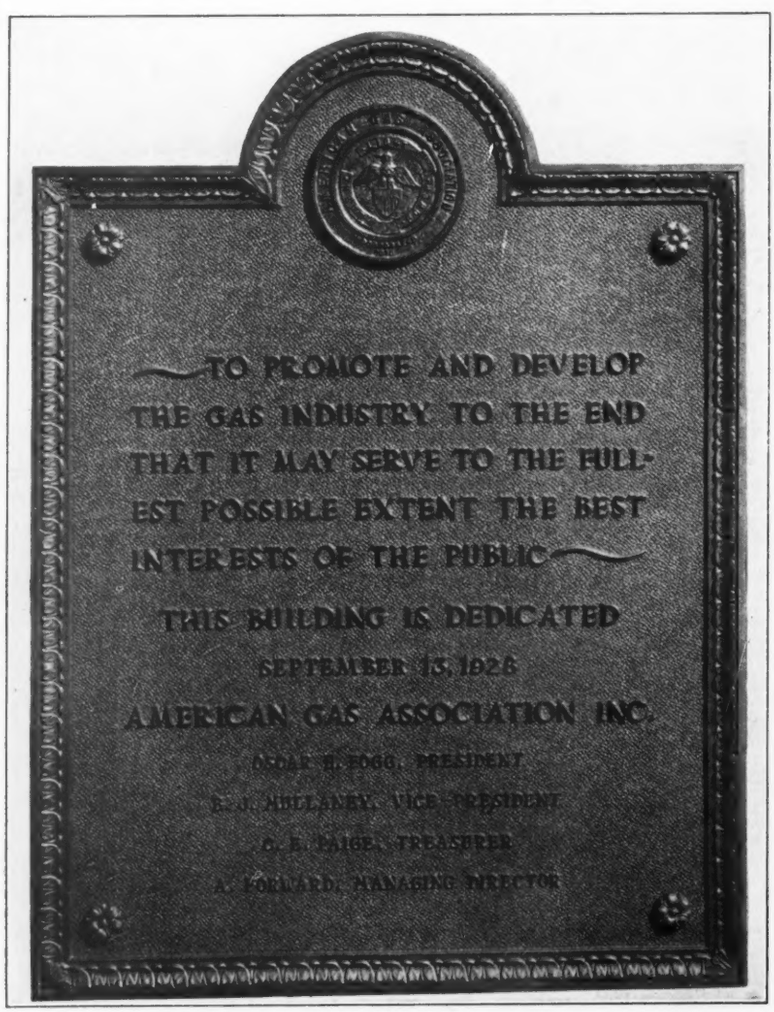
Ans.—Schaefer Brush Manufacturing Company, 393 Reed Street, and The Milwaukee Brush Manufacturing Company, 770 30th Street; both of Milwaukee, Wisconsin.

Gas for Warm Air

Ten Middle W
Show 14 Per C
in Use of Gas -
Air Units in 19
Period in

By J. DONALD K
A. G. A. Testing La
Cleveland Oh

CONVENIENCE has been a motivating factor in revolutionizing our living conditions and habits to the great extent witnessed during the past century. The American people, who hold convenience particularly dear, have led in this movement. They were among the first to banish from general usage wells and primitive means of obtaining water. Cooking with wood or coal is now unusual except in rural communities. Adequate and instant lighting service has been made available to nearly everyone in place of the smelly and dim oil lamp. Consequently many of the irksome duties of the household, accepted as necessary until recent years, are rapidly finding their places in the limbo of the past. In another century it will be difficult to even imagine their having once existed in the average home.



The Testing Laboratory was dedicated to the best interests of the public.

Another household chore which is a remnant of early methods and which will eventually disappear from the average home with the others is that of tending a fire for seven months a year to keep living quarters comfortable during the winter season. No one wants a dirty basement, the unsightly lawn, the polluted, sun-excluding atmosphere, or the inconvenience usually attending the use of solid fuels. The demand today is for the convenience and comfort represented in its highest form by the use of gas. This modern fuel is available at the heating appliance, never-failing, and lends itself ideally to automatic control. The modern American, accustomed to having choice musical programs brought to him in his home by radio, instead of having to spend useful hours threading traffic in order to reach the hall in which it is produced, naturally derives no

Heating Increases

Western States Cent Increase -Fired Warm 1929 Over Like in 1928

KROEKER
Laboratory
Ohio

pleasure from braving the morning chill to stoke the fire or shovel ashes. Rather, he realizes the opportunity of converting his basement into a pleasant recreation room. Consequently he puts in a gas heating appliance, lets the gas company worry about providing the fuel and depends upon a thermostat to regulate the temperature for him. His only concern is to light the pilot burner in the fall and to extinguish it when summer comes.

All this is possible when using gas for house-heating because the companies furnishing it are a part of an industry equipped to assume the responsibility of rendering this service continuously. A number of such companies have records of more than a century of uninterrupted public service through day and night to metropolitan, suburban, and some rural users.

Data supplied to the American Gas Association by 195 gas companies reporting for the years 1928 and 1929, give a fairly accurate index of the general trend in house heating with gas. An increase of 19.5 per cent in the number of central house-heating installations shown is remarkable as a year's record and can be interpreted only as indicating that a greater value is constantly being attached to the convenience of gas heat. Further analysis of these data shows that the number of gas warm air installations alone in ten middle western states has increased 14 per cent during the same period and that there are only 1.2 gas-fired installations per thousand of population in this area, approximately one-fourth of this number being furnaces designed to burn gas.

From these data it is apparent that, although the use of gas for

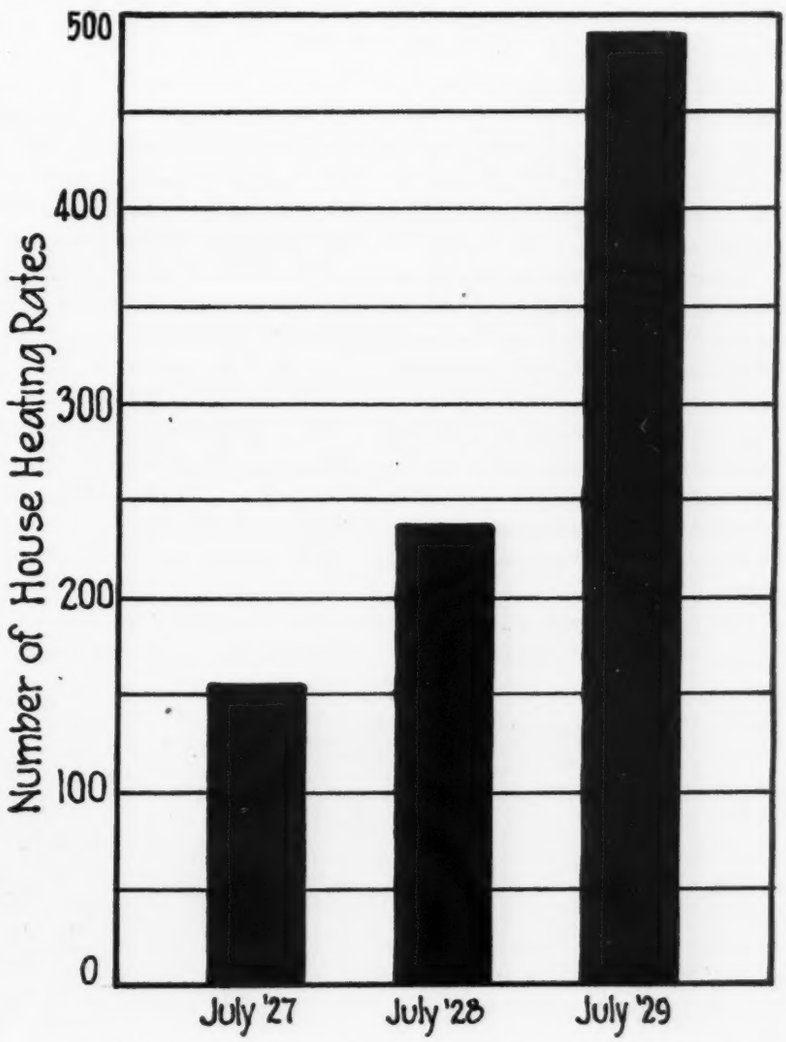


Chart Showing Growth in Number of House Heating Rates

house-heating is increasing rapidly, the possibilities of the field have hardly been touched.

To encourage development of this new service through the use of gas-fired house-heating equipment, gas companies in some of the larger cities of the United States have adopted and are offering special rates. The adoption of such rates has more than doubled during the past year, as the accompanying chart indicates.

A further service to the purchaser offered by the gas industry is its appliance approval testing activities fostered by the American Gas Association. For approval, appliances are required to comply with national basic requirements for safety, which have been prepared with the assistance of experts from the U. S. Bureau of Standards, U. S. Public Health Service, U. S. Bureau of Mines, Master Plumbers' Association, National Association of Heating and Piping Contractors, Canadian Gas Association and the American Gas Association. The requirements prepared are not adopted as final until sufficient opportunity has been given all those affected to submit criticisms.

These requirements are divided into two general classes, those for construction and performance. While most of the construction tests for gas warm air furnaces have at least an indirect bearing on safety, they also establish minimum weights of materials permissible in heating surfaces and casings and, by virtue of this fact, insure reasonable durability.

The performance tests, as applied to furnaces, insure safety, particularly from leakage of unburned gas, explosion, fire hazard, and incomplete combustion, and a thermal efficiency of at least 70 per cent, provided the appliance is properly installed and intelligently used.

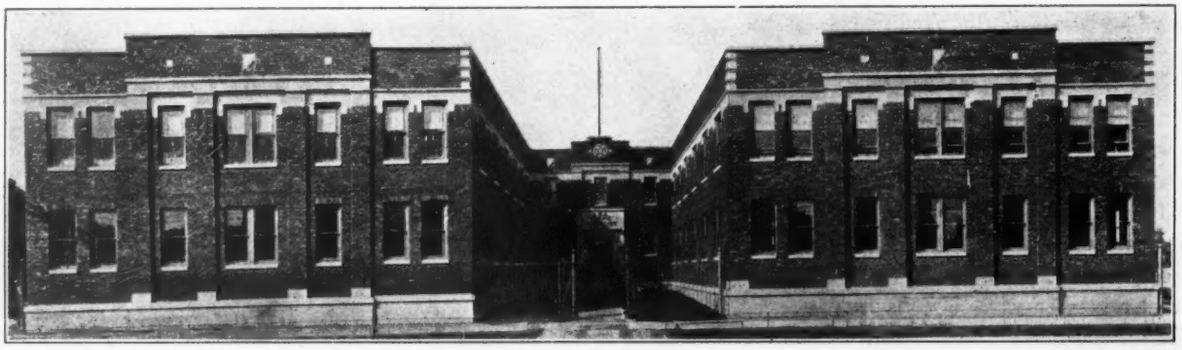
Furnaces, as well as other gas appliances, are tested for approval in accordance with these requirements by the American Gas Association's Testing Laboratory established in 1925 at Cleveland, Ohio. This institution is now the largest and the most completely equipped gas appliance testing laboratory in the world and is manned exclusively by engineers who are specialists in this field. Each appliance found by this organization to comply with all the requirements applicable is permitted to display the Laboratory Seal of Approval reproduced here. This, together with the manufacturer's information as to the number of the furnace and its gas burning capacity, is affixed permanently to each furnace for identification and guidance in proper installation.

This seal on a furnace shows that the furnace has been tested by the A. G. A.

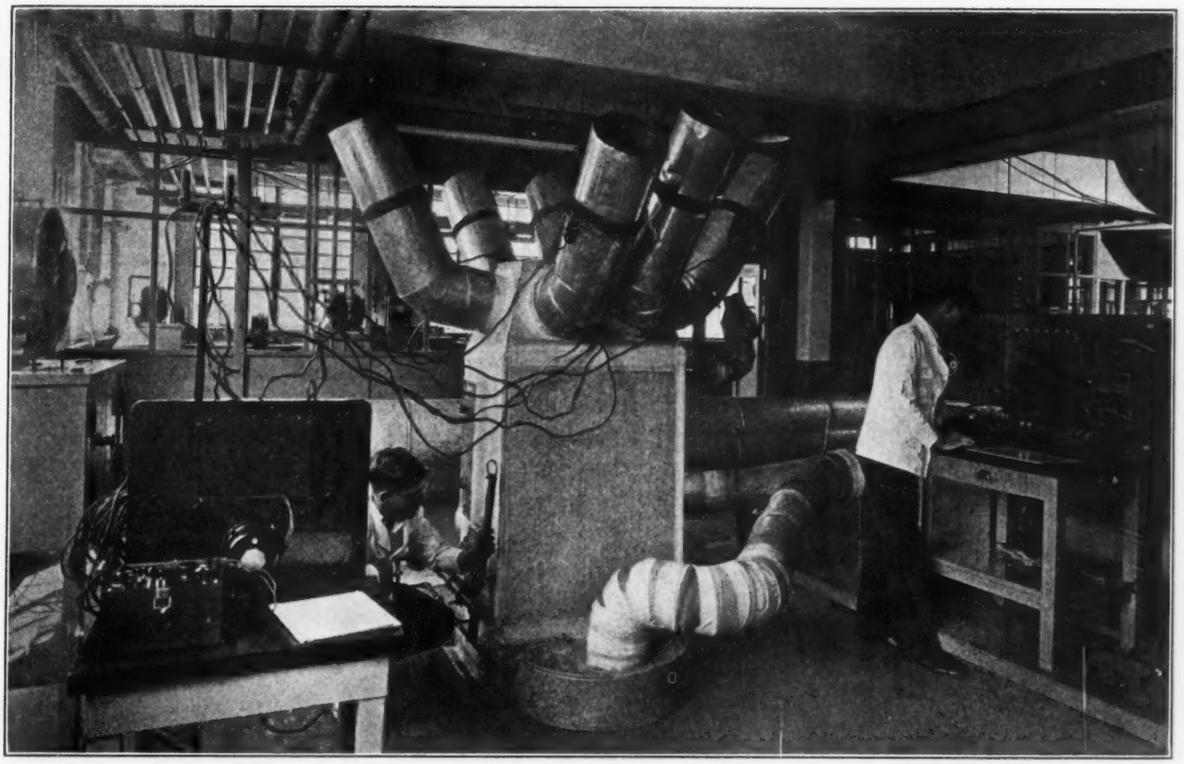
Each manufacturer submitting a furnace for test receives a certificate of approval effective for one year, if the appliance is found to comply with all requirements applicable. This certificate is renewed yearly after inspection at the factory or in the field, providing the product is found to be exactly the same in its essential details as that approved by test.

The Laboratory also publishes monthly a "List of Approved Appliances," in which all appliances which have the approval of the American Gas Association at that time and are entitled to bear the Laboratory Approval Seal, are listed. This list is available on application to the Laboratory for a small fee.

That the appliance approval activities of the American Gas Association have proved effective is indicated by a recent survey of test results which showed that more than 99 per cent of all appliances submitted for etst had failed to meet the requirements in some respect. It was shown, in fact, that all furnaces submitted had to be improved in some manner before being approved; 40 per cent of the furnaces were improved in efficiency, 45 per cent in combustion, and 78 per cent in other operating characteristics. The far-reaching effect of this program is not fully evident, however, until the fact is known that about 80 per cent of all furnaces sold in this country in 1929 had been approved by the Laboratory. This means, in other words, that those furnaces included in this number were better appliances from the standpoint of construction and performance than they had been previously.



The A. G. A. Testing Laboratory which conducts the approval activities of the American Gas Association.



Testing engineers engaged in testing a gas-fired warm air furnace for efficiency.

A further impetus to the great movement toward gas heating is the insistence of municipalities to attain not only smoke abatement but complete removal of smoke. A number of cities using natural gas are boasting the absence of smoke and its attendant objections. The evils of smoke have been the subject of many thorough investigations in recent years, which have reported results bound to add force to this movement.

COST ACCOUNTING

(*Concluded from Page* 201)

of $10.71 with a profit of $22.38. This difference is not altogether due to variations in their line of work. Of the five shops, shop No. 1, in the writer's opinion, is the best organized and most intelligently managed. The profit is not excessive, but his volume makes this small percentage run into very nice profits. This shop also has a complete bookkeeping system and the proprietor knows he is actually making his $7.59 profit every time he sells $100.

Shop No. 5, showing a profit of $28.03, is, perhaps, doing some guessing. His books are not quite so complete as shop No. 1, and if he has made a few mistakes in his figures, he does not know it. Unlike shop No. 1, No. 5 cannot find his profit of $28.03 in the bank.

Somewhere between these two shops is the average to be expected in your industry. Just where, no one can say. Shop No. 1 is probably nearer the actual facts than the others.

When you and others in your industry believe in the education of yourself and your competitor in the cost of doing business in your chosen field, you are on the right road to success. Sell yourself the idea and then sell it to other livewires. Keep at the job until you have put it over. Your uninformed or misinformed competitor fixes your prices to a very great extent. So long as he is convinced that he can do business without recognizing his overhead, just so long must you quote prices accordingly.

When you and your livewires get together and plan for the gathering of accurate cost data in your industry on a basis which is usable, such data to be compiled and published to all in your industry, you have started the biggest movement in the right direction you and your industry ever undertook. You have made it possible for your industry to say to the individuals comprising the industry that the average overhead costs are so much and know it is true.

In effect you say to the little fellow that no matter what he thinks his overhead is, the average experience is a certain figure. If you know the average experience of your fellows, you can judge your own efficiency, or lack of efficiency. Such a step will produce greater results than your Standard Code. It will eliminate one of the most vicious practices in your industry.

The price the customer should pay is the sum of your materials and direct labor, a proper proportion of your overhead and a reasonable profit. If you are selling for less you are doing yourself and your competitors a great injustice. You cannot do business blindly and hurt only yourself. You don't want to do your customer an injustice by overcharging him, even if your competitor would let you. And your competitor should not compel you to give the customer a job at less than a reasonable price. What are you going to do about it?

Increasing Furnace
With Oil

NEARLY two years ago R. W. Stockwell, representing the National Warm Air Heating Association, told members of the American Oil Burner Association, assembled for their annual convention, that warm air furnace men knew deplorably little about oil burners, while oil burner men were equally ignorant of the essential principles of warm air heating systems.

Securing Mouth to Ear Advertising

That statement, unpleasantly true at that time, has since been shot full of holes by the co-operative effort of the two industries in many sections of the country, but there are some localities in which the condition still obtains to the detriment of both furnace and oil burner manufacturers. Where they have co-operated the mutual benefits have been notable; where they have ignored one another a large volume of potential business has remained undeveloped and lost to both.

There is no longer any question but that a good oil burner properly installed in a well functioning warm air heating system will go a long way toward definitely and permanently solving the heating problems of the home owner, converting him into a substantial booster through whose recommendations other installations may be obtained. There is no better business builder than this mouth-to-ear advertising.

The essential problem with both furnace and oil burner manufacturers is one of sales. Both can make more equipment than they can find a market for, in spite of the fact, established by carefully checked statistics, that 50 per cent of the homes in the United States are without heating plants. About half of this 50 per cent are in localities in which there is little necessity for heat and where there are few basements. But the other half, comprising 25 per cent of all the homes in the country, represents an enormous potential business, nearly all of which is decidedly available to the manufacturer of warm air heating systems.

Explaining the Fine Points of an Oil Burner in a Warm Air Furnace

In the first place these homes for the most part are owned by families of moderate means. To such families the economies of installation and operation of the warm air system naturally make a strong appeal. Add to this the advantages of good air circulation and the conveniences inherent in a warm air system equipped with an oil burner and you have an appeal which properly exploited should develop a vast amount of business during the next few years.

Furnace Business Increasing Rapidly

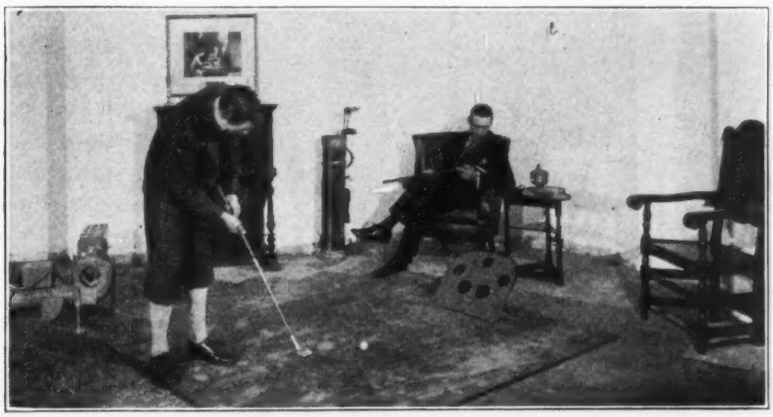
The growth of the warm air furnace industry in some sections of the country during the last decade has been amazing, but it has nowhere exceeded that of the oil burner business. A significant fact is that warm air furnace installations have increased most conspicuously in those localities where there has been the most marked co-operation between the furnace and oil burner manufacturers.

The idea that the cost of an oil burner installation is a drawback has long since been dissipated. As a matter of fact it has been demonstrated in numerous instances that, considered for an entire year, oil burners today supply heat at an even temperature more economically than coal. This is because automatic control prevents a waste of fuel during the early fall and spring seasons when the requirements of a heating plant vary largely from day to day.

This matter of even temperature heating is one that is constantly re-

Installation Profits in Oil Burners

ceiving n ...ion from physicians an ...ich can be readily capitalized by the alert furnace installer. Some eminent doctors within the past year or so have declared that more illness has been caused by uneven temperatures inside of homes than by the most severe of outdoor weather.



Selling Oil Burners by Visualizing Some of the Added Conveniences Possible to Father in an Extra Basement Room

The warm air heating system, by virtue of the fact that it facilitates the circulation of air in the home, has a distinct advantage over plants of other types. But to attain its best results it must insure an even temperature of the air thus circulated, and this end can best be achieved by equipping the warm air system with an oil burner automatically controlled by a thermostat.

Dealer Must Study Subject Thoroughly

One of the major problems in every branch of the heating industry today lies in improper dealer contact with the consumer. To be really efficient the dealer must be familiar with all the possibilities of the system he installs. If it is adapted for an oil burner, he should take advantage of the rising wave of popularity upon which the oil burner industry is building its growth and offer it to his customer.

If there is any doubt in the mind of anyone as to the rising demand for oil burners he has only to look about his own locality. Installations are increasing and it has been estimated by the Oil Heating Institute that they will total nearly 750,000, including homes, large buildings, factories and apartment houses, by the end of this winter.

The point here is that the warm air furnace manufacturer and his dealers are entitled to a better share of this business, perhaps, than they have been getting. The oil burner will continue to grow in popularity and the furnace manufacturer or dealer who permits the impression to prevail that it is not adaptable to his product is negligent of the possibilities of his business.

There are many reasons why furnace dealers in the sections where the best co-operation has prevailed have found the sale of oil burners to their distinct advantage. It has helped them to keep their business volume on an even basis so that they have not had to lay off in winter a part or the personnel made necessary by the peak activity of the summer months. In every case in which they have conducted a well-planned canvass for oil burner prospects they have not only kept

An Extra Reading Room Made Possible by Releasing Basement Space Due to the Oil Burner

their salesmen profitably employed throughout the year, but have also developed enough repair business to keep their shop forces going at all times.

Selling on Basis of Added Space

A great many owners of comparatively new homes, it has been found, had furnaces installed with the idea of adding an oil burner later on. By a little aggressive selling this alteration has been hastened in thousands of cases. The furnace dealer should point out to such a home owner that in addition the other advantages offered by an oil burner, the installation will reclaim his basement, eliminating the necessity for the coal bin and the removal of ashes. This argument is always especially effective with the owners of small homes, who, perhaps, need an additional room, and with families in which there are goodly broods of children. In the average house there is no room so well suited to the purposes of a nursery or playroom as is the basement. There the youngsters may romp to their heart's content without shaking the house or otherwise disturbing its occupants. It also makes an admirable den, billiard or sewing room, for it must not be forgotten that the basement, with a few extra touches after it has been cleared of the litter necessitated by a coal fire, makes just as good a room as any other.

The Children Are Given a Dry, Clean Place in Which to Play in the Added Basement Space. All Possible Sales Appeals

In these days, when an especial effort is being made to exploit beauty in every item of utility in the home, the oil burner lends itself admirably to the trend. Magazine advertisements feature basements converted into attractive club rooms, libraries or playrooms. Obviously this conversion cannot be made if the basement is littered with a coal bin and made dusty and untenable by the daily removal of ashes. Once the thoroughly clean process of heating by oil has been initiated, however, the cellar becomes available for virtually any use the home owner chooses to make of it.

Recently various plastic covers for furnaces, generally with a base of asbestos, has been developed and are now available in almost any desired color. These may be applied with a brush and where clean fuel is used are especially adapted to warm air installations. Home owners respond readily to this finishing touch, and alert dealers are using it as an embellishment of their sales argument.

One of the greatest obstacles in the way of the furnace men is the idea, unfortunately still prevalent in some sections, that oil burners are not adaptable to warm air heating plants. An oil burner, if properly installed in a warm air heating plant, will augment its service. If it is not correctly installed, or if the system is functioning improperly at the time of the installation, it will be no more efficient on any other type of heatnig plant than on a warm air system. The answer, of course, is that the warm air furnace dealer must familiarize himself with the requirements of oil burner operation and insist upon an installation that is correct in every detail. He should also check the functioning of the heating system before the burner is installed. If he does these things he will open up an avenue that will inevitably lead to greatly increased annual profits.

Fuel Cost No Longer a Sales Detriment

In recommending an oil burner installation the dealer no longer need fear to make price comparisons. Oil burners have been perfected to the point where they will deliver heat at approximately the same cost as any other fuel in all but the very smallest of installations. The initial outlay, of course, is slightly more than for a coal plant, but the compensations, including the relief from furnace tending, evenly controlled temperatures and the addition of an extra and attractive room to the house, are so great that there are few home owners indeed who are not glad to invest the little extra money.

Until quite recently warm air furnace installers were skeptical about installing oil burners. They found that due to the excessive amount of servicing required, the profit on the job was largely removed. The experimental stage is largely a thing of the past now and many furnace installers are finding a good profit in the business. Some have keys to a dozen or more buildings and are entirely responsible for the efficient operation of the oil burners on a regular servicing contract. The man who can build up a list of servicing accounts is placing himself in a very formidable position. He can stabilize his business in that way, which is his aim.

A. E. Rudolphi, Founder of Rudy Furnace Co., Dies

THE FURNACE industry was shocked to learn of the death of Arthur E. Rudolphi, president and general manager of the Rudy Furnace Company, at his home in Dowagiac, Michigan, on December 16, 1929. While Mr. Rudolphi had been in poor health during the past two years, yet he was able to be at his desk up until ten days prior to his passing.

In the death of Mr. Rudolphi the furnace fraternity lost one of its most colorful personalities. "Rudy," as he was affectionately called by everyone had spent a lifetime in the furnace industry. Beginning 35 years ago, he became identified with the Beckwith Company in the sale of Round Oak products. Having made good in the territory of New York State, he was brought into the office and made assistant to the sales manager and manager of the furnace sales department. After being in this line of business nearly 20 years, he left the Beckwith Company in 1914.

On March 26, 1915, Mr. Rudolphi founded the Rudy Furnace Company at Dowagiac. Under his guidance this company has been markedly successful since its inception. Five additions have been made to the original plant to care for the steadily expanding business. The last addition was made in 1929, a complete unit to provide production space for the company's new "Bon-Air" gas-fired furnace.

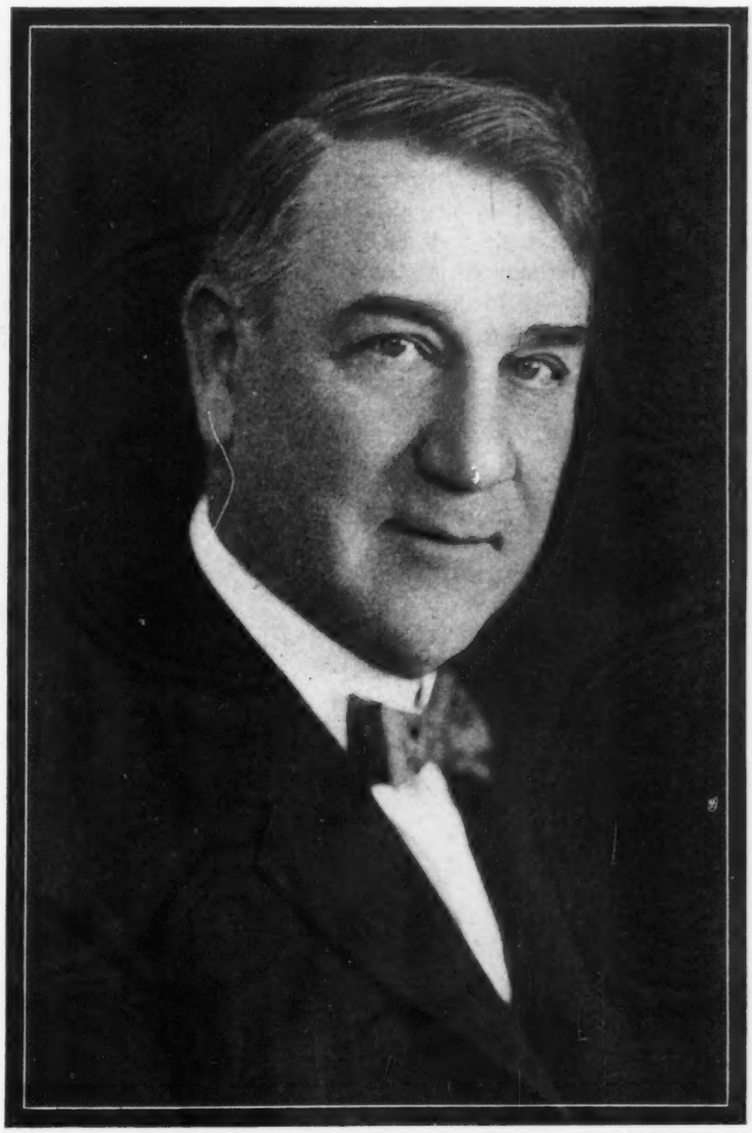
Rudy cherished two ambitions. One was to build a product that would command the attention and support of the buyers of better heating plants and would elevate the standard of the warm air heating industry.

It was also his ambition to surround himself with an organization trained in his policies so that the institution bearing his name might continue to expand and extend its influence. Few men gave as much thought to the future of his business as did Rudy. Few men cherished the friendship of dealers and fellow manufacturers with greater sincerity, and his door always stood open to them.

"Provident in all things, Mr. Rudolphi left no work undone. Every provision has been made to safeguard the interests of the Rudy Furnace Company and to insure a successful continuance along the lines of his policies of administration," says one of his business associates.

Mr. Rudolphi was born in Hartford, Wisconsin, November 11, 1869, the son of Dr. and Mrs. Theophilus Rudolphi, the former an able physician and native of East Prussia who was educated at Koenigsberg and Stuttgart, Germany.

In 1877 the Rudolphi family moved to Dowagiac, and the young Rudolphi gained his education in the schools here. His father was engaged in the drug store business for many years. He displayed a genius for music and studied at the Central Music College in Chicago.



1869 **A. E. Rudolphi** 1929

(*Continued on Page* 235)

Main Point in Cold Air Boot Construction Is Sufficient Space to Minimize Friction

By Adolf Kealer,
Instructor Washburne Trade School

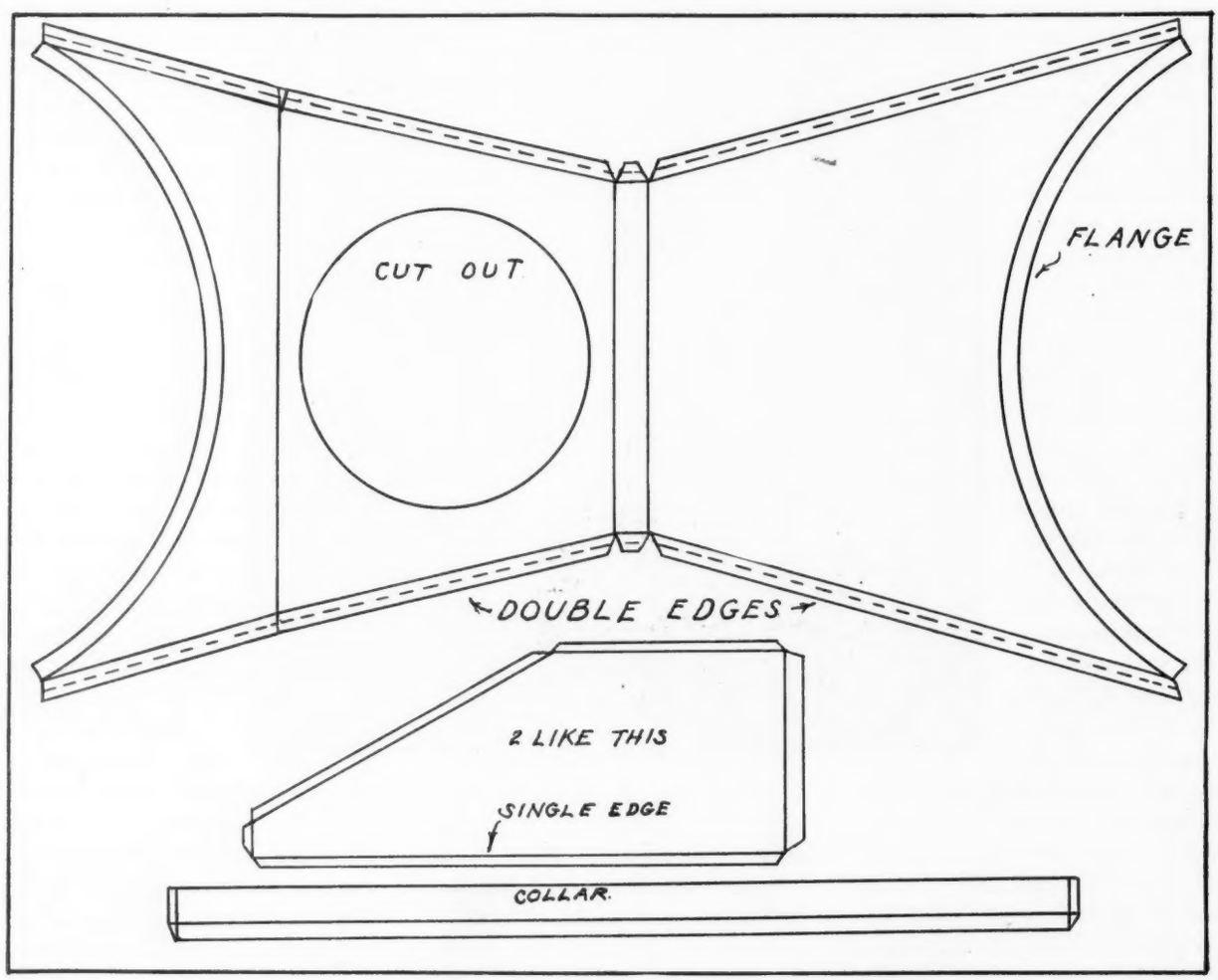
THE cold air boot shown in this drawing is of simple design and is made to carry the air with the least possible friction. It is spread out sufficiently to give an even distribution of cold or returned air into the furnace.

Before the plan and elevation of the boot can be drawn, the diameter of the cold-air supply pipe should be determined according to the Standard Code and then design the top of the boot, to allow ample room for the collar of the cold-air supply pipe.

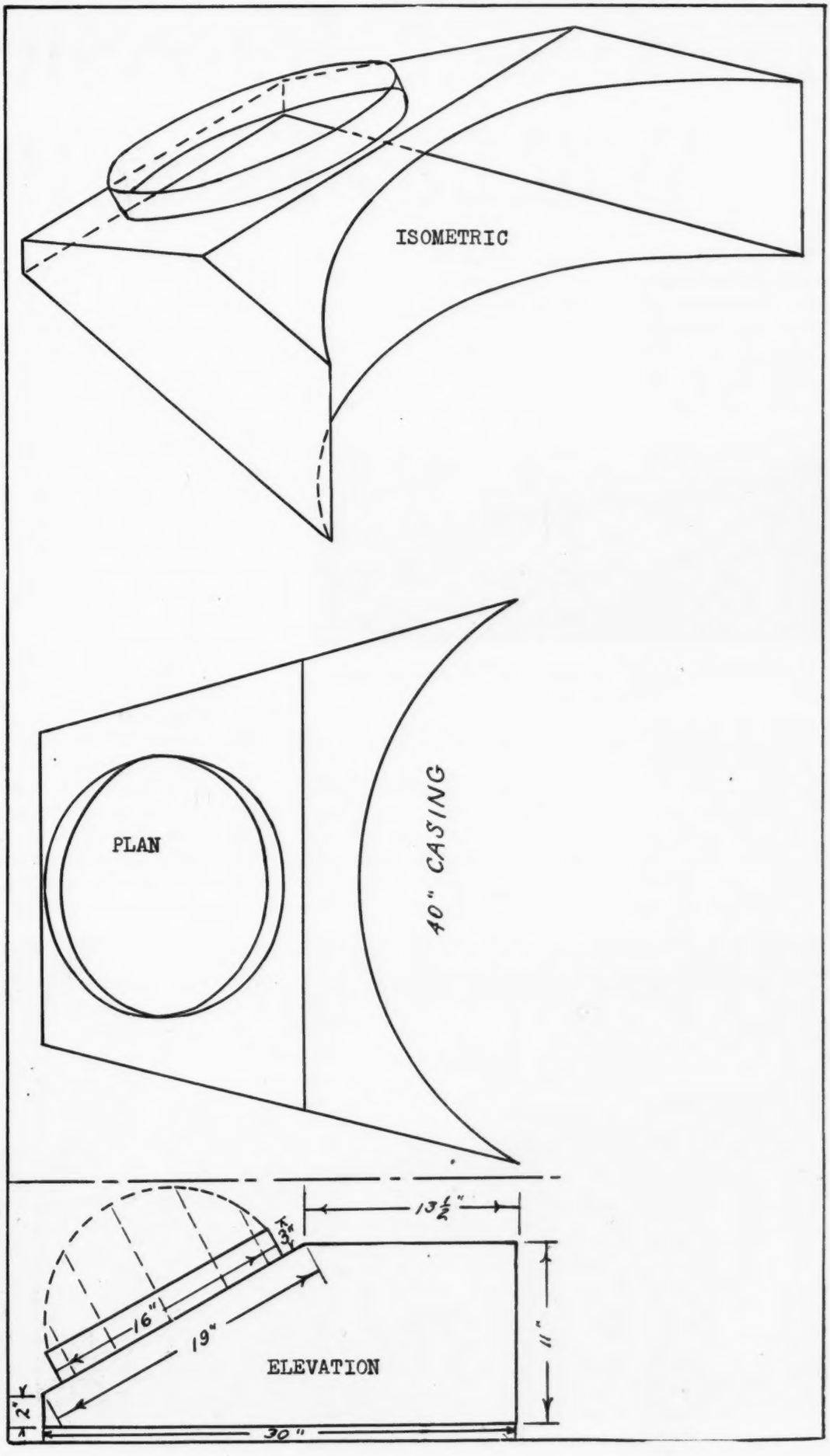
The boot is spread out on the circumference of the casing so that the rectangular opening in the casing is at least 10 per cent larger in area than the 16-inch round pipe.

Single and double edges should be allowed for double seaming in order to make the boot dust-tight, and flanges for fastening the boot to the casing should also be allowed, as shown by the patterns developed.

The amount of sheet metal work on the warm air heating system is considerable. Therefore it behooves every furnace installer to know pattern drafting thoroughly. Every furnace installation is individual. Conditions are constantly met with that require specially designed apparatus to meet special conditions as they are found.



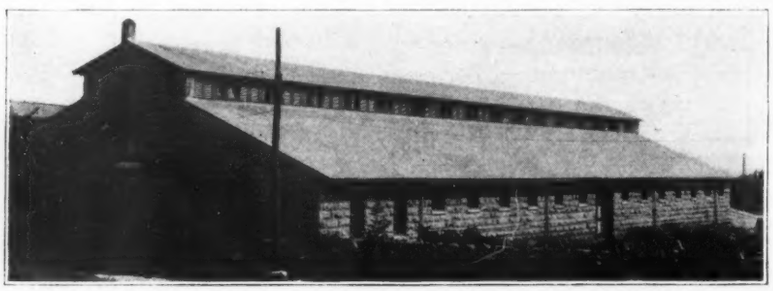
Illustrating Construction of Pattern for Cold Air Boot on a Warm Air Furnace



Plan, Isometric, and Elevation of a Cold Air Boot to Fit a 40-Inch Warm Air Furnace Casing. Construction of This Boot Is Such That It Permits the Air to Flow from the Duct Into the Casing with the Least Possible Friction and Turbulence

Public Greatly Interested *in* P
Will Pay Extra Price I

SOME few years ago the steel industry came to realize that there existed greater markets for the products of their mills than they were taking advantage of. They also discovered that the reason why these markets were not being developed in a manner in which the steel industry had a right to expect was that the public was not being awakened to the possibilities for superior service which steel could render. It was not long after this realization came to them that the various factors comprising the steel industry determined upon a program of cooperative market development effort and the organization of the Sheet Steel Trade Extension Committee followed. That body is functioning now in a very efficient manner and as a consequence the markets for sheet steel have been vastly extended.

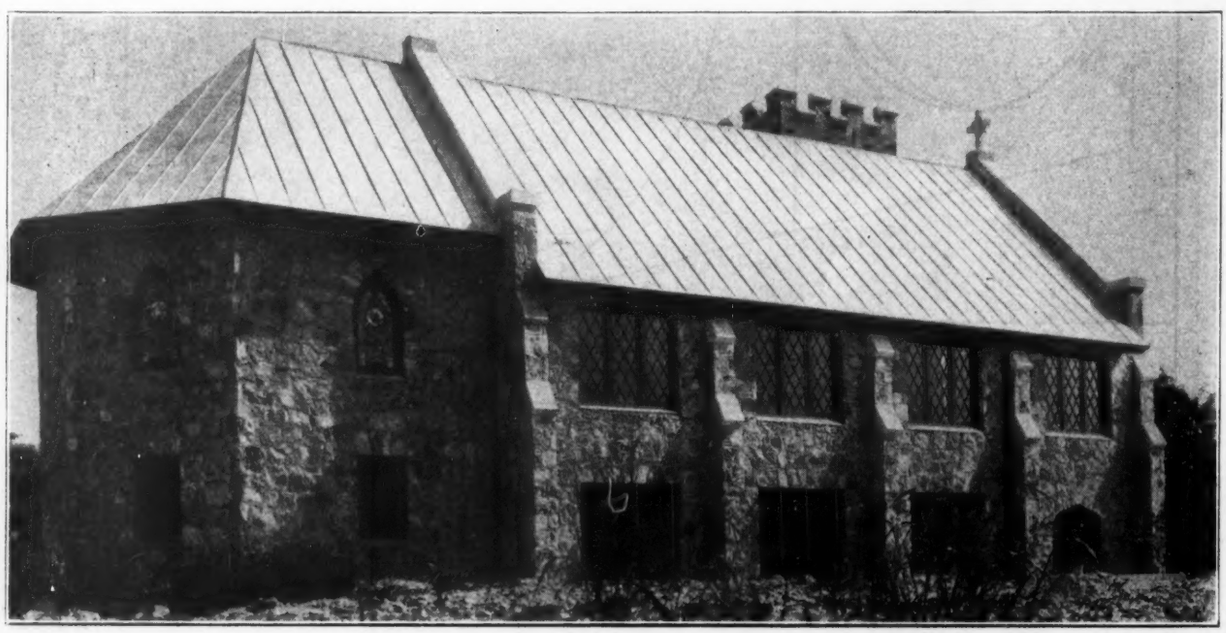


Florists' Planter's Shed Covered with Armco Iron for Permanence in Construction

The task of developing markets is not the only thing that is necessary to a healthy growth of an industry. One very important phase of the work concerns itself with the education of the men who are delegated to erect the metal so to understand the proper handling of the material that it will serve its function in the best possible manner. In order to meet with any kind of success at all in this phase of the work it is necessary to conduct research, perform tests and learn the true nature of the metals that are being handled; to find out for what purposes they are best suited, where they will render their best service and under what conditions they are not suitable. It is as important to know this latter as it is to know the former.

To this end sheet metal producing mills are constantly conducting research work. Thousands of dollars are spent each year in the gathering of statistical data that will reveal the product in its true form so that all manner of conditions can be met and proper adjustments made.

But what does the immediate future hold for the steel industry? Perhaps L. D. Mercer, sales man-



St. Helena Episcopal Church, Boerne, Texas, Covered with Toncan Metal

Permanent Construction—If Properly Sold

ager of the Sheet and Strip Division of the Central Alloy Steel Company, Massillon, Ohio, will give as nearly a true picture as possible of what to expect in 1930.

Here's what Mr. Mercer says:

"The year 1930 will test the mettle of American business. Faint hearts and feeble souls that wait and wonder in fear and doubt will find little cause for rejoicing. It will be a year whose best rewards will go to fighters.

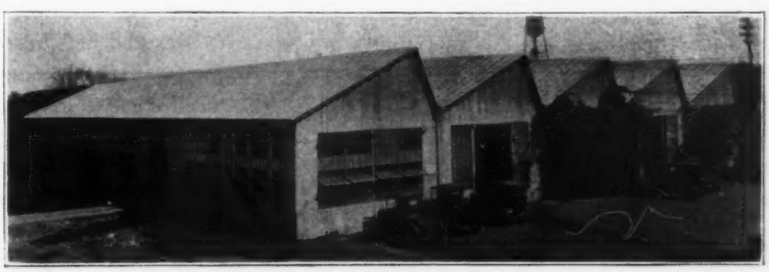
"Behind us lies the easy, level ground on which business has been traveling at high speed during the greater part of 1929. We have encountered a hill. Considerably more power is required in order to make the grade. The power consists chiefly of the courage to meet and overcome temporary obstacles.

"All signs indicate that the early months of 1930 will see general business proceeding at a speed appreciably less than that of a year ago. The hill has slowed things up. We must climb the hill in order to get back on level ground again.

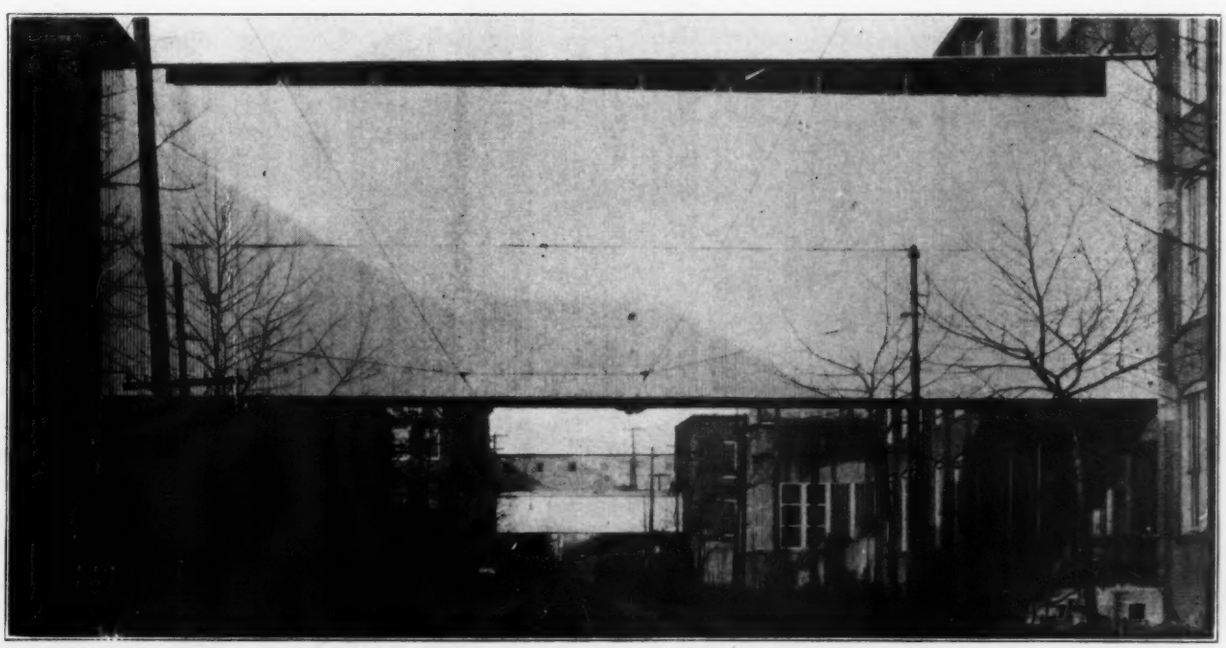
"There will be a steady acceleration of speed throughout the entire year, unless present indications fail. Sales volumes can hardly be expected to meet those of the past year, but each month of 1930 should show a gain over the preceding month's activity in most fields of industry.

"Steel business, in our opinion, will improve steadily during the coming year over its record of the last quarter of 1929. In fact, it has already begun to feel the influence of the inspiring leadership of President Hoover in stimulating sane thought and progressive action concerning the present industrial situation. Building construction seems sure to enjoy a good year, largely because of the abundance of money released from the stock market. This augurs well for sheet metal sales. A huge volume of public building projects is already promised in all sections of the United States.

(*Concuuded on Page* 235)



Roof of Toncan Metal Installed on Industrial Building by Henckley Co., Dallas, Texas



Walk Between Buildings Covered with Armco Iron for Lasting Service

Public Response to Amply Fulfills

By William

COMPETENT authorities are agreed that the year 1930 should show an appreciable increase in the volume of residential building in the United States. They base this belief on the fact that the money situation is now much more favorable for the promotion of construction enterprises than it has been for a year and a half. The stock market readjustment and the easing of interest rates have restored to the building industry its normal opportunities for progress.

A forecast of increased residential building construction is of interest to the copper industry and obviously must be of great interest, also, to other industries and crafts which supply materials or contribute the skilled workmanship essential to building construction. So far as copper is concerned, the past year has seen new records established in refinery production and shipments. This, of itself, indicates the dependence of industry generally upon copper and its alloys. He would, indeed, be an inspired prophet who could define for any industry its position a twelve-month hence. But, to use an expressive colloquialism, if past performance is a reliable zasis for prediction, we take no great risk in assuming that an increase in the volume of residential building construction will mean at least one increased outlet for copper and its alloys.

Those who keep in touch with trends in the building construction field know that for some years past there has been a strong preference manifested for copper sheet metal work in all types of buildings; that brass or copper pipe is favored for water supply lines, and that brass or bronze installations such as hardware and lighting fixtures have become earmarks by which to judge high quality of work and materials in any structure.

A copper consciousness is particularly noticeable among the builders and buyers of residential property. Our own contacts with the public through our direct mail literature demonstrate how keenly the home builder or home buyer of today is interested in lasting installations—in permanent construction of every kind. It continually comes to our notice that prominent builders of homes for resale (so-called speculative builders) cater to this public interest.

New York Central Building, New York City, Copper Roofing Put On By Master Craftsmen of America

Urge to Use Copper Expectations

A. Willis

We are, in fact, told by many builders that people looking to buy a home are pretty sure to ask, first thing, whether the flashings, gutters and downspouts are of permanent construction. Women are becoming more and more interested, too, in another phase of the construction which is a large copper consumer—the wiring of a house. More than 150 different electrical devices for labor saving, comfort and what not now at the service of the housekeeper illustrate the fact. Copper is an integral part of their construction and through the medium of the house wiring it supplies their motivating force.

Only a few years ago the radio was merely an interesting laboratory experiment. Today it is almost as essential a home adjunct as the kitchen stove. A survey made by the Copper and Brass Research Association indicates that American homes got their radio entertainment very largely through the instrumentality of more than 50,000,000 pounds of copper entering into the construction of radio sets during the past two years. And copper is, of course, indispensable to the service of the broadcasting stations. It has been estimated that there is a potential market for some 26,000,000 radio receiving sets in this country alone. The electrically powered set is growing in popularity by leaps and bounds. Like other electrical appliances for home use, its good service is dependent upon adequate wiring. Consider what the use of all these electric devices means in terms of amplified wiring systems for new or modernized homes and it will be readily appreciated what this one item of copper consumption alone will amount to in the predicted increased volume of residential construction. Women want handy outlets and plenty of them for convenient use of the many electric appliances they are employing, and builders are paying a lot more attention today to the preferences of the woman of the house.

Take the latest infant prodigy in the industrial field—the automatic refrigerator. It does not require much imagination to vision the time when every house in urban sections will have its own little ice-making and cold storage plant. Automatic refrigerators, both gas and electric, rely on copper for efficient service from vital parts such as coils and tubing. In the case

Fisher Building, Detroit, Michigan, Covered With Copper Roof By R. I. Spitzley Co.

of the electric machines their power is furnished by the house wiring system.

As for copper and its alloys in large modern office buildings, hotels and apartment houses, the tonnage used is considerable. Even the most casual inspection of any new sky-scraper will disclose a visible copper content in the form of bronze that is little short of amazing. Bronze entrances, bronze store fronts, bronze elevator doors, ornamental work, balustrades, window sash, and bronze grilles might almost be said to be standard in modern fine buildings as we know them.

Cleveland Telephone Building, Copper Roof and Sheet Metal Work By Reister & Thesmacher, Cleveland

Bank architecture has achieved notable distinction in this country, and in such structures craftsmen in bronze have cooperated with the architects in producing artistry in metal work such as perhaps has not been given to the world since the famous handiwork of the old masters in this field.

All of this work employing a copper alloy is in addition to the utilitarian uses of copper and brass for roofing purposes and water piping in modern buildings of the foregoing types. As an indication of the greatly increased use of copper and its alloys in building construction during recent years we may cite brass pipe. When our association began its promotional work for copper in 1921 brass pipe was little more than a negligible item in the country's general construction program. Last year more than 76,000,000 pounds of brass pipe went into service in the building and other fields. It is just one of those things which go to show that people are as much interested in good materials as in good workmanship. They will pay the somewhat higher price for lasting materials in order that good workmanship may justify itself in the maximum service which every conscientious workman intends that a job done by him shall give. In appropriate uses in practically every important industry copper and its alloys serve the world's needs.

FURNACE OUTLOOK

(*Concluded from Page* 191)

In fact, many people who have held the building of new homes in abeyance will want to rush plans now to take advantage of the low interest rates to finance their building.

During the slack time in the building field those furnace men who have been able to keep busy have done so by working the furnace cleaning and repair business as they never have before. In fact, many have found this business their only salvation. But the reopening of construction activities is going to find them in the best possible posi-

tion to swing right into line on the new business because they have kept in touch with the public and have not allowed the public an opportunity to forget them.

That is an advantage which the farsighted always have over the others.

Still another factor which is going to make for better business in 1930 is the advertising which the Warm Air Institute has in project. But it might as well be stated here that only a small portion of the present contingent of warm air furnace installers is going to profit by this advertising. And they will be those who make their shops look like representative engineering establishments between now and the time when the advertising starts. Just as soon as a demand for warm air heating becomes manifest, men with merchandising ability and ideas are going to be attracted to the industry.

The basic factors which make for better business are shaping themselves in such a manner as to bring about improvement. Some men in the furnace business are going to trim their sails to profit by the readjustment, and they are going to do it by planning aggressive, intelligent sales campaigns. Not by price cutting. The advantage many furnace men now have in being on the ground is not going to remain an advantage for long unless they take steps to bring their places of business more in line with what the American people are in the habit of recognizing as local depositories of reliable heating information and service.

PUBLIC WILL PAY

(*Concluded from Page 231*)

"The business organizations which will be going strong in the last half of 1930 will be those which start out strong in the first half, with alert, ambitious plans and with fighting hearts.

"Let's adopt the fighting words of the American doughboy in the World War as he got the signal to go over the top: "Up and at 'em!"

On the other hand, if the sheet metal contractor will only realize the position of importance he occupies in the scheme of things he can do a great deal towards bettering his own conditions. In an address recently made before sheet metal contractors, Bennet Chapple, vice-president of the American Rolling Mill Company, Middletown, Ohio, gave the contractors much of an inspirational character, in order to stimulate their imaginations. The title of the address was, "What's Around the Corner for the Sheet Metal Contractors?" and here's what Mr. Chapple had to say, in part:

"I put enthusiasm first, for without enthusiasm in our effort the soul is dead, and the graveyard and not business is the place for the dead. Show me a successful sheet metal contracting business and I'll show you an enthusiastic, alert organization where every man takes pride and joy in his work. The man who is ashamed of the sheet metal business ought to get out of it—the sooner the better. He is hurting himself and the business. The man who doesn't know how to make money out of the sheet metal business ought to get out of it before he is forced out by the inevitable law of destruction.

"Psychology tells us it is a wholesome thing to take an honest inventory of ourselves as well as our business. Too often we inventory our business and forget to inventory ourselves. If we do not ask these questions of ourselves, Destiny will ask them of us. I had a dream the other night and in this dream I saw, just around the corner, this figure of Destiny standing. In one hand he held a cudgel; in the other he held a scepter of prosperity. What are you and what are you doing? I asked him boldly. In deep, sepulchral tones he said: 'I am Progress in the sheet metal industry. I ask each sheet metal man who comes my way five questions and deal with him accordingly.' What are these questions? I asked. Silently he showed them to me and I pass them on to you. Here they are:

"1. Are you proud of your sheet metal business and do you believe in its future for yourself and family?

"2. Are you keeping accurate costs on each job by an efficient cost accounting system, or are you too lazy?

"3. Are you budgeting your expense?

"4. Are you using modern sales effort to go after jobs, or are you too bashful to solicit your share of the sheet metal business?

"5. Are you interesting yourself in association work? Are you doing your part or are you riding blind baggage on the efforts of others?"

A. E. RUDOLPHI DIES

(*Concluded from Page 227*)

While studying music he spent part of his time taking a pharmacist course. After three years he returned to Dowagiac well equipped for a musical career and to enter the drug business. He conducted the Rudolphi store two years after his father's death. Then he sold his interests and was a clerk in the R. Lewis drug store.

Mr. Rudolphi was married to Miss Phebe Hunter, daughter of Mr. and Mrs. George Hunter, prominent Wayne residents, on June 29, 1903.

In his official business capacities Mr. Rudolphi was president and general manager of the Rudy Furnace Company, president of the Rudy Acceptance Corporation, director of the Dowagiac National Bank.

In his local affiliations he was a member of the Masonic Order, Modern Woodmen of America, Woodmen of the World, B. P. O. E., and a Rotarian.

He leaves besides his wife and daughter, Helen Ann Rudolphi, four sisters and a brother, Mrs. Eugene Gilbert, Mrs. Clarence Pattison, Mrs. Judd Clary, Mrs. Maleta E. Austin, and Louis Rudolphi.

The funeral was held from the house on Thursday, December 19, at 2:30 p. m., Rev. Joseph Fox officiating.

1930 Furnace Business Prospects Bright for Those Who Will Work Hard

THIS is a composite of the opinion of warm air furnace and register manufacturers on the outlook for 1930 in the furnace business. A questionnaire was sent out to furnace makers in all parts of the country. Their replies indicate that the stock market deflation has had the effect of releasing capital for use by the construction industry which has been tied up in Wall Street for the past year and a half or more. It is felt that lower interest rates will revive building construction in all types of structures, and that the furnace business will receive its share of that new business where proper effort is put forth to get it. In other words, the stage is set for a revival and consistent, intelligent effort will give the furnace industry its share of the business.

Arranging for Increased Production

"We regard the outlook for sales of furnaces next year as very encouraging. We have arranged for an increase in production during the first six months of one-third as compared with the present year. Our optimism is based largely upon the reception accorded to our new 'Ace' furnace."

Very truly yours,
The Excelsior Steel Furnace Co.,
Chicago.

* * *

Aggressive Sales Effort Will Be Rewarded

"We anticipate increased sales of furnaces for 1930. We believe aggressive sales efforts, together with consumer and dealer advertising are necessary. Especially the benefits of automatic accessories should be stressed to present fully that warm air furnace heat at utmost efficiency is better and not second to radiator heat.

Yours very truly,
Hess Warming & Ventilating Co., Chicago.
Per C. W. Hess.

* * *

Southwest in Fairly Good Shape

"Regarding the outlook for warm air furnace business for 1930, will say that conditions in our district look to us even more favorable than for the past three years. We think the southwest is in pretty good shape and probably is not as much affected by the recent flurry in the stock market as the more eastern territory."

Yours very truly,
Security Stove & Mfg. Co.,
Kansas City.
G. W. Blakesley,
President.

* * *

Industry Will Show Improvement in 1930

"We feel that the warm air heating industry will show an improvement in 1930 over 1929.

"While our 1929 total volume of sales shows a decided gain over 1928, our volume in furnace sales shows a loss, but like many other furnace manufacturers, we hope to 'stage a comeback' during 1930."

Very truly yours,
Oakland Foundry Co., Belleville, Illinois.
By H. Ehret.

* * *

Optimistic Over Future Prospects of Warm Air

"We are pleased to acknowledge your favor of December 5th, and in reply would state that our company feel that owing to the falling off in building during the past year, and the need in many communities of more homes, the prospects of being more able to finance the building of homes due to an easier money market for such enterprises, that there will be an increased demand for warm air furnaces.

"Adding to this, also, the better class of furnace installation that has been developed during the past two or three years has already had a desired effect in helping the home owner to express his preference for warm air heat over other methods of heating.

"The demand for conditioned, automatically controlled warm air heating is growing quite noticeably and will have its effect on many satisfied users, who will endorse warm air heat more than ever before. This, of course, will be helpful to the furnace industry.

"We are very optimistic over the future prospects of warm air heating."

The Majestic Co.,
Huntington, Ind.
By J. M. Triggs, President.

* * *

1930 Should Be Most Profitable Year

"Business for 1929 is closing in splendid shape, in fact, very much ahead of 1928.

"Our outlook for 1930, together with the corrections that are being made in the warm air heating industry and the prospects of many more corrections being made, should be the most profitable year we have ever had.

"However, there is a big duty we have to perform in supporting warm

(*Continued on Page* 241)

Furnace Trade Names and Manufacturers

A

Trade Name	Pipe or Pipeless	Cast or Steel	Type Radiator	Fuel Burned	Maker
Atlantic, F. O.....	Both	Cast	.....	Wood & Coal	Portland Stove Found. Co.
Atlantic, H. F.....	Both	Cast	.....	Coal	Portland Stove Found. Co.
Atlantic	Both	Cast	.....	Wood	Portland Stove Found. Co.
Andes	Both	Cast	Horizontal	Gas & Oil	Andes Range & Found. Corp., Geneva, N. Y.
Archweld	Pipe & Pipeless	Steel	Doughnut	Oil	Archweld Mfg. Co., Seattle, Wash.
Archweld B	Pipe & Pipeless	Steel	Down Draft	Oil	Archweld Mfg. Co., Seattle, Wash.
Ajax	Pipe	Cast	Steel Rad.	Coal	Co-operative Found. Co.
Agricola	Pipe	Cast	Horseshoe	Coal	Agricola Furnace Co., Gadsden, Ala.
Ath-A-Nor	Both	Cast	Open Dome	Coal	The May-Fiebeger Co., Newark, O.
Akron Air Blast....	Pipe	Cast & Steel	Crab Type	Coal	The May-Fiebeger Co., Newark, O.
AFCG	Pipe	Cast & Steel	R.E.,T.Crescent	Oil	American Furnace Co., St. Louis
Acme Gem	Pipe	Cast	Horseshoe	Coal	Gem City Stove Mfg. Co., Buffalo, N. Y.
Amherst A	Pipe	Cast	Cast	Coal	Buffalo Co-operative Stove Co.
Amherst B	Pipeless	Cast	Cast	Coal	Buffalo Co-operative Stove Co.
Amherst C	Pipe	Cast	Cast	Coal	Buffalo Co-operative Stove Co.
American	.....	.....	.....	.....	American Found. & Fur. Co., Bloomington, Ill.
American Self-Clean.	.....	.....	.....	.....	American Found. & Fur. Co., Bloomington, Ill.
American Junior.....	.....	.....	.....	.....	American Found. & Fur. Co., Bloomington, Ill.
American Gas.....	.....	.....	.....	.....	American Found. & Fur. Co., Bloomington, Ill.
Ace	Pipe	Cast	Self Cleaning	Coal	Excelsior Steel Furnace Co., Chicago
Air Tight	Pipe	.....	.....	.....	Success Heater Mfg. Co., Des Moines, Iowa

B

Banner	Both	Cast	Open Dome	Coal	C. E. Smith Hdw. Co., New Castle, Pa.
Baronet	Pipe	Cast	Return Pipe	Coal	Int. Heater Co., Utica
Blaze	Pipe	Cast	Round	Coal	Tubular Heat. & Vent. Co., Philadelphia
Brillion	Both	Cast	H'shoe & G'n'k	Coal	Brillion Fur. Co., Brillion, Wis.
Beechwood	Both	Cast	Steel & C. Iron	Coal	Quakertown Stove Works, Quakertown, Pa.
Ben Franklin.....	Both	Steel	Crescent	Coal	Midland Furnace Co., Columbus, O.
Bridge-Beach	Both	Cast	Circular	Coal	Bridge & Beach Mfg. Co., St. Louis.
Benefit	Both	Steel	Cast & Steel	Coal	Benefit Steel Fur Co.
Boiler-Plate	Pipe	Steel	Rear Radiator	Coal	Majestic Co., Huntington, Ind.
Butler	Both	Steel	"VV"	Coal	Ramey Mfg. Co., Columbus, O.
Boomer	Pipe	Cast & Steel	Return Flue	Coal	Hess-Snyder Co., Massillon, O.
Bee-T-yoll	Pipe	Steel	.....	Coal	A. H. Robinson Co., Massillon, O.

C

Colburn	Both	Steel	Steel Crescent	Coal or Oil	Enterprise Boiler & Tank, Chicago
Campbell Brick.....	Pipe	Steel	Oval Steel	Oil	Campbell Heating Co., Des Moines, Iowa
Campbell Half Series	Pipe	Steel	Oval Tubular	Oil	Campbell Heating Co., Des Moines, Iowa
Campbell 800 Series..	Pipe	Steel	.....	Oil	Campbell Heating Co., Des Moines, Iowa
Crown	Pipe	Cast	Open St'l Dome	Coal	Reynolds Mfg. Co., Springfield, Mo.
Castle Rivit	Pipe	Steel	Return	Coal	C. Ed. Smith Hdw. Co., New Castle, Pa.
Castle Welded	Pipe	Cast	Return	Coal	C. Ed. Smith Hdw. Co., New Castle, Pa.
Carton	Pipe	Cast	Crab	Coal	Int. Heater Co., Utica, N. Y.
Cozy	Both	Cast	Horseshoe	Coal	The Schill Bros. Co., Crestline, O.
Challenge	Both	Cast	Horseshoe	Coal	Stand. Fdry. & Fur. Co., DeKalb, Ill.
Colonial	Pipe	Cast	Cres. Doughnut	Oil	Green Fdry. & Fur. Co., Des Moines, Iowa
Crescent	Pipe	Cast	Diving Flue	Coal	Green Fdry. & Fur. Co., Des Moines, Iowa
Capitan, El	Both	Cast	Crescent	Coal	Midland Fur. Co., Columbus, O.
Conrad Freshaire....	Pipe	Steel	None	Coal, Oil, Gas	General HeatingCo., St. Paul
Caloric	Both	Cast	Circular 1 Piece	Coal	Marshall Fur. Co., Marshall, Mich.
Castle Economy.....	Both	Cast	Vertical	Oil	Comstock-Castle Stove Co., Quincy, Ill.
Chandler	Both	Cast	Return Flue	Coal	Chandler Pump Co., Cedar Rapids, Iowa
Chandler Jr.	Both	Cast	Top Radiator	Coal	Chandler Pump Co., Cedar Rapids, Iowa
Climax	Both	Cast	.....	Coal	Taplin-Rice-Clerkin Co., Akron, O.
Century Climax	Both	Cast	.....	Coal	Taplin-Rice-Clerkin Co., Akron, O.
Convector	Pipeless	Cast	Return Flue	Coal	L. J. Mueller Fur. Co., Milwaukee
Comforter	Both	Cast	Open Dome	Coal	Favorite Stove & Range Co.

D

Dowagiac Seamless..	Pipe	Steel	Crescent	Gas or Oil	Dowagiac Steel Fur. Co., Dowagiac, Mich.
Dandy Wrought Steel	Pipeless	Steel	.....	Coal	Success Heater Mfg. Co., Des Moines, Iowa
Down Draft	Pipe	Cast	Self Cleaning	Coal	Excelsior Steel Fur. Co., Chicago

E

Trade Name	Pipe or Pipeless	Cast or Steel	Type Radiator	Fuel Burned	Maker
Economy Blue Front.	Both	Cast	Return Flue	Coal	Int. Heater Co., Utica, N. Y.
Economy Wood Burn.	Both	Cast	Steel	Coal	Int. Heater Co., Utica, N. Y.
Economy Combination	Pipe	Cast	Diving H'shoe	Coal	Int. Heater Co., Utica, N. Y.
Economy Steel.....	Pipe	Steel	Crescent	Coal	Int. Heater Co., Utica, N. Y.
Efficient	Both	Cast	Gooseneck	Coal	Excelsior Steel Fur. Co., Chicago
Empire	Pipe	Cast	Steel	Coal	Co-operative Fdry. Co.
Equator	Both	Steel	Small Crescent	Coal	Lennox Fur. Co., Marshalltown, Iowa
Essex	Both	Cast	.....	Coal	Richardson & Boynton Co., New York City
Exl	Both	Cast	Crescent	Gas, Oil	Excelsior Steel Fur. Co., Chicago

F

Faultless	Both	Cast	Top	Oil or Gas	Graff Fur. Co., Scranton, Pa.
Farquhar	Pipe	Horiz. Steel	.....	All Fuels	Farquhar Fur. Co., Wilmington, O.
Farris Standard.....	.....	Cast	Open Dome	Coal	Farris Fur. Co., Springfield, Ill.
Farris Waterbase....	.....	Cast	Open Dome	Coal	Farris Fur. Co., Springfield, Ill.
Forbes	Pipe	Cast	Special	Coal	Tubular Heating & Vent. Co., Philadelphia,
Famous	Both	Cast	Horseshoe	Coal	Excelsior Steel Fur. Co., Chicago
Florence Hot Blast..	Both	Cast	Open Dome	Coal	C. Emrich Co., Columbus, O.
Famous Climax.....	Both	Cast	.....	Coal	Taplin-Rice-Clerkin Co., Akron, O.
Front Rank	Pipe	Steel	Tub. Cast Bot.	Coal, Oil, Gas	Langenberg Mfg. Co., St. Louis
Favorite	Both	Cast	Horseshoe	Coal	Favorite Stove & Range Co.
Favorite 2	Pipe	Steel	.....	Gas	Favorite Stove & Range Co.

G

Garland	Both	Cast	One Piece	Coal	Detroit-Mich. Stove Co., Detroit
Gilt Edge	Pipe	Cast	Return Flue	Coal	R. J. Schwab & Sons, Milwaukee, Wis.
Gilt Edge Fireside...	Pipeless	Cast	Return Flue	Coal	R. J. Schwab & Sons, Milwaukee, Wis.
Grand	Both	Horiz. Cast	Two Piece	Coal & Comb.	Cleveland Co-op. Stove Co., Cleveland
Gibraltar	Both	Cast	Open Dome	Coal	Ma Girl Foundry, Quincy, Ill.
Gem City	Pipeless	Cast	Horseshoe	Coal	Gem City Stove Mfg. Co.
Gem	Pipe	Cast	Top	Coal	Robinson Furnace Co., Chicago.
Gem Horizontal	Both	Steel	Crescent	All Fuels	Munson-McCairns Htr. & Fdy. Co.
Gas Era	Pipe	Cast	.....	Gas	L. J. Mueller Fur. Co., Milwaukee, Wis.

H

Hart	Both	Cast	Horseshoe	Coal, Oil, Gas	Hart Mfg. Co., Louisville, Ky.
Harold	Both	Steel	Double	Oil	Harold Fur Co., Spokane, Wash.
Haswell	Pipe	Steel	Horseshoe	Coal	Haswell Steel Fur. Co., Circleville, O.
Haswell Horizontal..	Both	Cast & Steel	.....	Coal	Haswell Steel Fur. Co., Circleville, O.
Hudson Horizontal...	Both	Steel	Down Draft	Coal	Arcweld Mfg. Co., Seattle, Wash.
Heavy Duty Service..	Both	Steel	.....	Coal	Success Heater Mfg. Co., Des Moines, Iowa
Hi-Power	Pipe	Steel	.....	Coal	L. J. Mueller Furnace Co., Milwaukee.
Home	Both	Cast	Combination	Coal	Rock Island Stove Co., Rock Island, Ill.
Hot Base	Pipe	Cast	Combination	Coal	Rock Island Stove Co., Rock Island, Ill.
Huron	Pipeless	Cast	Horseshoe	Coal	Huron Furnace Co., Huron, S. D.
Hero	Both	Cast	Horseshoe	Coal	Standard Fdry. & Fur. Co., De Kalb, Ill.
Heatmore	Both	Cast & Steel	.....	Coal	Unit Stove & Fur. Co., Birmingham
Hercules Horizontal..	Both	Steel	Double Oval	Coal	Lennox Fur. Co., Marshalltown, Iowa
Hermetic	Both	Steel	Small Crescent	Coal	Lennox Fur. Co., Marshalltown, Iowa
Hermetic	Both	Cast	Horseshoe	Coal	Favorite Stove & Range Co.

I

Inter-State	Both	Cast	Horseshoe	Coal	Carr Supply Co., Chicago
Inland Empire.....	Both	Steel	Triple	Coal	Harold Fur. Co., Spokane, Wash.
Ideal Wrt. Iron.....	Both	Steel	.....	Coal	Success Heater Mfg. Co., Des Moines
Ideal Type "C".....	Both	Steel	.....	Coal	Success Heater Mfg. Co., Des Moines
Ideal Type "B".....	Both	Steel	.....	Coal	Success Heater Mfg. Co., Des Moines
Ideal Wood Burner..	Both	Steel	.....	Wood	Success Heater Mfg. Co., Des Moines
Int'l Wood.....	Both	Cast	Return Flue	Wood	Int'l Heater Co., Utica, N. Y.
Int'l Heavy Duty....	Both	Cast	Crab, R't'n Flue	Coal	Int'l Heater Co., Utica, N. Y.
Int'l One Pipe.....	Both	Cast	Return Flue	Coal	Int'l Heater Co., Utica, N. Y.
Ideal	Both	Cast	Cast	Coal	Ideal Fur. Co., Detroit
Ideal King	Both	Cast	Cast	Coal	Kansas City Fur. Co., Kansas City, Mo.

J

Jewell	Pipe	Cast	Cast & Steel	Coal	Detroit-Mich. Stove Co., Detroit
June Air	.....	.....	.....	Gas	American Fdry. & Fur. Co., Bloomington Ill.

K

Keith	Pipe	Cast	One Piece	Oil	Keith Fur. Co., Des Moines, Iowa
Kefco	Pipe	Cast	Two Piece	Oil	Keith Fur. Co., Des Moines, Iowa
Kruko	Pipe	Steel	Crescent	Coal	Kruse Co., Indianapolis
Krusoil	Pipe	Steel	Tubular	Oil	Kruse Co., Indianapolis
Krusair	Pipe	Steel	Tubular	Oil	Kruse Co., Indianapolis
Keystone	Both	.....	.....	Coal	Keystone Stove & Fdry. Co., Spring City, Pa.

Trade Name	Pipe or Pipeless	Cast or Steel	Type Radiator	Fuel Burned	Maker
L					
Life Saver	Both	Steel	.....	Coal	Success Heater Mfg. Co., Des Moines, Iowa
Lennox	Both	Steel	Oval	Coal	Lennox Fur. Co., Marshalltown, Iowa
Lincoln	Both	Cast	.....	Coal	American Fdry. & Fur. Co., Bloomington, Ill.
Lincoln Junior	Both	Cast	.....	Coal	American Fdry. & Fur. Co., Bloomington, Ill.
Lincolnsteel	.....	Steel	Ec'n'mizer Type	Oil	American Fdry. & Fur. Co., Bloomington, Ill.
Lincolnsteel	.....	Steel	Crescent	Coal	American Fdry. & Fur. Co., Bloomington, Ill.
M					
Menson Horizontal..	Pipe	Steel	Compound	Gas	Munson-McCairns Heater & Fdy. Co.
Majestic Favorite....	Both	Steel	Down Draft	Gas & Oil	Majestic Fur Co., Seattle, Wash.
Majestic Oblong.....	Both	Steel	Down Draft	Gas & Oil	Majestic Fur Co., Seattle, Wash.
Majestic Regular.....	Both	Steel	Down Draft	Gas & Oil	Majestic Fur Co., Seattle, Wash.
Majestic Super.....	Both	Steel	Down Draft	Gas & Oil	Majestic Fur Co., Seattle, Wash.
Meteor	Both	Cast & Steel	Cast & Steel	Gas & Oil	Thatcher Co., Newark, N. J.
Model	Both	Steel	Cres. &O. Dome	Coal	Home Stove Co., Indianapolis, Ind.
Magic	Both	Steel	Crescent	Coal & Oil	Gilson Htg. Co., Port Washington, Wash.
Mahoning	Pipe	Cast	Return Flue	Coal	C. Ed. Smith Hdw. Co., New Castle, Pa.
Mahoning C	Pipe	Cast	Open Dome	Coal	C. Ed. Smith Hdw. Co., New Castle, Pa.
Mahoning D.....	Pipe	Cast	Return Flue	Coal	C. Ed. Smith Hdw. Co., New Castle, Pa.
Montag	Both	Cast	Horseshoe	Coal Oil	Montag Stove Wks., Portland, Ore.
Master	Both	Cast	Round	Coal	Tubular Htg. & Vent. Co., Philadelphia, Pa.
Monarch	Pipe	Cast	Return Flue	Coal	Forest City Walworth Run Fdrs. Co., Cleveland.
Mueller	Pipe	Cast	Double	Coal	L. J. Mueller Fur. Co., Milwaukee, Wis.
Mueller Full Front..	Pipe	Cast	Return Flue	Coal	L. J. Mueller Fur. Co., Milwaukee, Wis.
Mueller Horizontal ..	Pipe	Cast & Steel	.....	Coal	L. J. Mueller Fur. Co., Milwaukee, Wis.
Mueller Wd. Burning	Pipe	Cast & Steel	.....	Wood	L. J. Mueller Fur. Co., Milwaukee, Wis.
Mueller Combination.	Pipe	Cast	Return Flue	Coal & Wood	L. J. Mueller Fur. Co., Milwaukee, Wis.
Mueller Forced Air..	Pipe	Cast	Return Flue	Coal	L. J. Mueller Fur. Co., Milwaukee, Wis.
Modern Hearth.....	Both	Steel	Crescent	Gas & Oil	Thompson Mfg. Co., Denver, Colo.
Modern Hearth Spec.	Pipe	Steel	Built In	Gas & Oil	Thompson Mfg. Co., Denver, Colo.
Moncrief	Both	Cast	Cast	Gas & Oil	Moncrief Fur. Co., Atlanta, Ga.
Moncrief Series C...	Both	Cast	1-Piece	Coal	Henry Fur. & Fdry. Co.
Moncrief Series 100..	Pipe	Cast	2-Piece	Coal	Henry Fur. & Fdry. Co.
Moncrief Series 530A	Pipe	Cast	2-Piece	Coal	Henry Fur. & Fdry. Co.
Mellow	Both	Cast	Top 1-Piece	Coal	Liberty Foundry Co.
Moore's Self Cleaning	Both	Cast	Self Cleaning	Coal	Moore Bros. Co., Joliet, Ill.
Moore's Sunglo.....	Pipe	Cast	Return Flue	Coal	Moore Bros. Co., Joliet, Ill.
Master	Pipe	Cast	Down Draft	Oil	Majestic Co., Huntington, Ind.
Monitor	Both	Cast	2-Piece	Coal	Marshall Fur. Co., Marshall, Mich.
Merrimac	Both	Steel	Crescent	Coal	Marshall Fur. Co., Marshall, Mich.
Mid-West	Pipe	Cast	Top	Coal	Standard Fur. & Supply Co., Kansas City
Mid-West	Pipe	Steel	Top	Coal	Standard Fur. & Supply Co., Kansas City
Mo's	Pipe	.....	.....	.....	Standard Fur. & Supply Co., Kansas City
Monitor	Pipe	Steel	Crescent	Coal	L. C. Thiele Co., Indianapolis, Ind.
N					
Northwestern	Both	Cast	.....	Coal	Western Fur., Inc., Tacoma, Wash.
Northwestern No. 22.	Both	Steel	.....	Coal	Western Fur., Inc., Tacoma, Wash.
National	Both	Cast	Open Dome	Gas	Excelsior Stove & Mfg. Co.
National	Both	Cast	Horseshoe	Gas	Excelsior Stove & Mfg. Co.
National Success	Both	.....	.....	Coal	Success Heater Mfg. Co., Des Moines, Iowa
National Success Jr..	Both	.....	.....	Coal	Success Heater Mfg. Co., Des Moines, Iowa
New Idea	Pipeless	Cast	.....	Coal	Richardson & Boynton Co., New York
New Idea	Pipe	Cast	.....	Coal	The Schill Bros. Co., Crestline, Ohio
New Steel	Pipe	Steel	Open Dome	Coal	The Schill Bros. Co., Crestline, Ohio
Niagara	Both	Cast	.....	Coal	Forest City Walworth Run, Cleveland
Neal's	Both	.....	Return Flue	Gas	Neal & Co., Warren, Pa.
Nat'l Horizontal	Pipe	Cast	Tubular	Coal	Ma Girl Foundry, Bloomington, Ill.
Nat'l Airtight	Pipe	Cast	.....	Coal	Ma Girl Foundry, Bloomington, Ill.
Nat'l Super Heater..	Pipe	Cast	.....	Coal	Ma Girl Foundry, Bloomington, Ill.
Nesbit	Pipe	Cast	Top	Coal	Standard Fur. & Supply Co., Kansas City
O					
Oakland	Both	Cast	Horseshoe	Coal	Oakland Fdry. Co., Belleville, Ill.
Oakland	Both	Cast	Open Dome	Coal	Oakland Fdry. Co., Belleville, Ill.
Olympic	Both	Cast	Doughnut	Coal	Washington Stove Works, Everett, Wash.
Oblong	Both	Cast	Doughnut	Coal	Washington Stove Works, Everett, Wash.
Orient	Pipe	Steel	Double Down	Coal, Gas, Oil	L. C. Thiele Co., Indianapolis.
P					
Premier De Luxe....	Both	Cast	Top Ret'n Flue	Coal	Premier Warm Air Heat. Co, Dowagiac, Mich
Perfection Circulator.	Both	Steel	Single	Oil	Harold Fur. Mfg. Co., Spokane, Wash.
Pacific	Both	Steel	.....	Coal	W. W. Rosebraugh Co., Salem, Ore.

Trade Name	Pipe or Pipeless	Cast or Steel	Type Radiator	Fuel Burned	Maker
Power Plus	Both	.....	.....	Coal	Success Heater Mfg. Co., Des Moines, Iowa.
Perfect	Both	Cast	.....	Coal	Richardson & Boynton Co., New York
Perfect	Both	Steel	.....	Coal	Richardson & Boynton Co., New York
Positive Perfect	Pipe	Cast	.....	Coal	Richardson & Boynton Co., New York
Prize	Pipe	Cast	Top	Coal	Robinson Furn. Co., Chicago
			Q		
Queen	Pipe	Cast	Return Flue	Coal	Int'l Heater Co., Utica, N. Y.
Quality	Pipe	Cast	Horseshoe	Coal	Majestic Co., Huntington, Ind.
Quick Heater	Both	Both	Steel Crescent	Coal	Quick Fur. & Supply Co., Des Moines, Iowa
Quick Heater, Jr.	Both, Horiz.	Both	Steel Crescent	Coal	Quick Fur. & Supply Co., Des Moines, Iowa
			R		
Richmond	Both	Cast	2-Piece	Coal	Richmond Stove Co., Richmond, Va.
Rex	Both	.....	.....	Gas	Calkins & Pearce, Columbus, O.
Rex	Auxiliary	.....	.....	Gas	Calkins & Pearce, Columbus, O.
Rapid Fire	Both	Cast	Top	Coal & Oil	Reynolds Mfg. Co., Springfield, Mo.
Rudy	Both	Cast	Top Circular	Coal	Rudy Fur. Co., Dowagiac, Mich.
Rudy Hi-Power	Pipe	Cast	Horseshoe	Coal	Rudy Fur. Co., Dowagiac, Mich.
Rudy Bon-Air	.....	Cast	.....	Gas	Rudy Fur. Co., Dowagiac, Mich.
Radiant	Both	Cast	Cast & Steel	Gas & Oil	Thatcher Co., Newark, N. J.
Royal	Both	Cast	1-Piece	Coal	Hart & Crouse, Utica, N. Y.
Rotoblast	Horizontal	Cast	Cast	Gas & Oil	Moncrief Fur. Co., Atlanta, Ga.
Ravenna	Both	Cast	Open Dome	Gas & Oil	Ravenna Fur. & Htg. Co.
Rival	Both	Cast	Open Dome	Gas & Oil	Ravenna Fur. & Htg. Co.
Rainbow	Both	Cast	Top	Coal	Langenberg Mfg. Co., St. Louis
Round Oak	Pipe	Cast	Diamond Shape	Coal	Beckwith Co., Dowagiac, Mich.
R'd Oak Boiler Plate	Pipe	Steel	Kidney	Coal	Beckwith Co., Dowagiac, Mich.
Roaster	Pipe	.....	.....	Coal	Taplin-Rice-Clerkin Co., Akron, O.
Robinson	Pipe	Steel	Crescent	Coal	A. H. Robinson Co., Massillon, O.
Robinson Forc-Air	Pipe	Steel	.....	Coal	A. H. Robinson Co., Massillon, O.
Rob'son Quick Action	Pipe	Steel	.....	Gas	A. H. Robinson Co., Massillon, O.
			S		
Security	Both	Cast	Horseshoe	Coal	Security Stove & Mfg. Co., Kansas City
Security	Both	.....	.....	Gas	Security Stove & Mfg. Co., Kansas City
Stewart	Pipe	Cast	Crab	Coal	Fuller & Warren Co., Troy, N. Y.
Stewart B. & C.	Pipe	Cast	Horseshoe	Coal	Fuller & Warren Co., Troy, N. Y.
Stewart M. & P.	Pipeless	Cast	Horseshoe	Coal	Fuller & Warren Co., Troy, N. Y.
Sunbeam	Pipe	Cast	Horseshoe	Coal	Fox Fur. Co., Eyria, Ohio
Sunbeam B Series	Pipeless	Cast	Horseshoe	Coal	Fox Fur. Co., Eyria, Ohio
Sunbeam	Pipe	Steel	Kidney	Coal	Fox Fur. Co., Eyria, Ohio
Success	Pipe	.....	.....	Wood	Success Heater Mfg. Co., Des Moines, Iowa
Service Heater	Pipe	.....	.....	Coal	Success Heater Mfg. Co., Des Moines, Iowa
Super-Heater	Pipe	.....	.....	Coal	Success Heater Mfg. Co., Des Moines, Iowa
Spear's Horizontal	Pipe	Cast	Vertical	Coal	James Spear Stove & Heating Co., Philadelphia
Spear's Anti-Clinker	Both	Cast	Drum	Coal	James Spear Stove & Heating Co., Philadelphia
Special Forced Air	Pipe	Cast	1-Piece	Oil	Keith Fur. Co., Des Moines, Iowa
Super Smokeless	Both	Cast	.....	Coal	Richardson & Boynton, New York City
Superior	Pipe	Both	.....	Coal	Richardson & Boynton, New York City
Steel Weld Oblong	Both	Steel	Vert. D'n Dr'ft	.....	F. S. Lang Mfg. Co., Seattle, Wash.
Special	Both	Cast	Self Clean.	Coal	Excelsior Steel Fur. Co., Chicago
Sprague	Horizontal	Cast	Top	Coal	Sprague Fdy. & Mfg. Co., Council Bluffs, Iowa
Solid Comfort	Both	Cast	Top	Coal	May-Fiebeger Co., Newark, O.
Sundale	Both	Cast	Open Dome	Gas & Oil	Ravenna Fur. & Htg. Co.
Standard	Pipe	Cast	Horseshoe	Coal	Majestic Co., Huntington, Ind.
Stanco	Pipe	Cast	Back	Coal	Standard Fur. & Supply Co., Kansas City
Superb	Both	Steel	.....	Coal, Gas, Oil	Meyer Furnace Co., Peoria, Ill.
Sanitary	Pipe	Cast	Horseshoe	Coal	L. C. Thiele Co., Indianapolis
Solar Horizontal	.....	.....	.....	.....	American Fdry. & Fur. Co., Bloomington, Ill.
Super Solar Horiz.	.....	.....	.....	.....	American Fdry. & Fur. Co., Bloomington, Ill.
			T		
Tubular	Pipe	.....	Cast & Steel	Gas & Oil	Thatcher Co., Newark, N. J.
Titan	Both	Cast	Horseshoe	Coal	Standard Fdry. & Fur. Co., De Kalb, Ill.
Thermo Horizontal	Both	Cast	Round	Coal	American Fur. Co., St. Louis
Torrid Zone	Both	Steel	Crescent	Coal	Lennox Fur. Co., Marshalltown, Iowa
Torrid Zone	Pipe	Steel	Spec. Oval	Gas & Oil	Lennox Fur. Co., Marshalltown, Iowa
Torrid Zone	Both	Steel	.....	Gas Only	Lennox Fur. Co., Marshalltown, Iowa
Tropico	.....	.....	.....	.....	Lennox Fur. Co., Marshalltown, Iowa
Tubular	Pipe	Cast	Tubular	Coal	Robinson Fur. Co., Chicago
Thiele	Pipe	Steel	2-Piece Cr'sc'nt	Gas & Oil	L. C. Thiele Co., Indianapolis
			V		
Victor	Pipe	Steel	Fin Radiator	Coal & Oil	Hall-Neal Fur. Co., Indianapolis

W

Trade Name	Pipe or Pipeless	Cast or Steel	Type Radiator	Fuel Burned	Maker
Wiechery	Pipe	Cast	Horseshoe	Coal	St. Clair Fdry Corp., Centralia, Ill.
Wiechery	Pipeless	Cast	Open Dome	Coal	St. Clair Fdry Corp., Centralia, Ill.
Wise	Both	Cast	Circular	Coal	Wise Furn. Co., Akron, O.
Wise	.....	Cast	Open Dome	Coal	Wise Furn. Co., Akron, O.
Wise	Both	Both	.....	Gas	Wise Furn. Co., Akron, O.
Winter Chaser	Both	Steel	Oval Steel	Coal, Oil	Campbell Htg. Co., Des Moines, Iowa
Western	Both	Steel	Cast Iron	Coal	Kansas City Furn. Co., Kansas City
Wodcol	Both	Cast	D'nut & G'n'k	Coal	W. W. Rosebraugh Co., Salem, Ore.
Warm Friend	Both	Cast	Cast Steel	Gas, Oil	Thatcher Co., Newark, N. J.
Wright	Both	Cast	Return Flue	Coal	C. Ed Smith Hdw. Co., New Castle, Pa.
Waterbury Seamless	Both	Steel	Crescent	Coal, Oil	Waterman-Waterbury Co., Minneapolis
W't'b'y Radio Face	Both	Steel	Diving Flue	Coal	Waterman-Waterbury Co., Minneapolis
W't'rb'y Home Heater	Pipe	Steel	.....	Coal	Waterman-Waterbury Co., Minneapolis
Wizard	Pipe	Cast	Open Dome Baffle Plate	Coal	Agricola Furn. Co., Inc., Gadsden, Ala.
Western	Both	Steel	Direct Damper	Coal	Western Steel Prod. Co., Duluth, Minn.
Wolverine	Pipe	Cast	Crab	Coal	Marshall Furn. Co., Marshall, Mich.
Wolverine Aristocrat.	Both	Cast	2-Piece	Coal	Marshall Furn. Co., Marshall, Mich.
Wolverine Economic.	Both	Cast	1-Piece	Coal	Marshall Furn. Co., Marshall, Mich.
Wolverine Series B.	Both	Cast	2-Piece	Coal	Marshall Furn. Co., Marshall, Mich.
Wier	Both	Steel	.....	Gas, Oil, Coal	Meyer Furn. Co., Peoria, Ill.
Western	Both	Cast	1-Piece	Coal	Western Furnaces, Inc., Tacoma, Wash.
Westritc	Both	Cast	Gooseneck	Coal	Western Furnaces, Inc., Tacoma, Wash.
Western Horizontal.	Pipe	Cast	.....	Wood	Western Furnaces, Inc., Tacoma, Wash.
Western Giant	Pipe	Cast	.....	Coal	Western Furnaces, Inc., Tacoma, Wash.

Z

Zero King	Both	Cast	Horseshoe V Baffle Plate	Coal	Oakland Fdry. Co., Belleville, Ill.
Zenith	Both	Steel	Direct Damper	Coal	Western Steel Prod. Co., Duluth, Minn.

Additional Trade Names

This List Was Compiled From Several Others in Order to Complete the Information Where Manufacturer Did Not Respond to the Questionnaire in Time to Have It Included in the List Above

A

A. B.	A. B. Stove Co.	Battle Creek, Mich.
Acme Hummer	Sears, Roebuck & Co.	Chicago, Ill.
Active	Galt Stove & Furnace Co.	Galt, Ont., Canada
Acorn	Rathbone, Sard & Co.	Aurora, Ill.
Adelphia	Wright Mfg. Co.	New Haven, Conn.
Admiral	Boynton Furnace Co.	New York City
Advance	Kyle Mfg. Co.	Lancaster, Ohio
Advance	Schill Bros. Co.	Crestline, Ohio
Air Water	Langenberg Mfg. Co.	St. Louis, Mo.
Akron Oak	May-Fieberger Co.	Newark, Ohio
Apex	Victor Stove Co.	Salem, Ohio
Armstrong Guaranteed	Thomas & Armstrong Co.	London, Ohio
Astor	Union Stove Works	New York City

B

Badger	Badger Furnace Co.	Appleton, Wis.
Banner	Thatcher Co.	Newark, N. J.
Banner	Keeley Stove Co.	Columbia, Pa.
Banner	Galt Stove & Furn. Co.	Galt, Ont., Canada
Barstow	Barstow Stove Co.	Providence, R. I.
Bay State	Barstow Stove Co.	Providence, R. I.
B. B. Portable	B. C. Portable Stove Co.	Baltimore, Md.
Beacon	Walker & Pratt Mfg. Co.	Boston, Mass.
Beaver	Danville Stove & Mfg. Co.	Danville, Ill.
Bengal	Floyd, Wells Co.	Royersford, Pa.
Bermuda	Cooperative Fdry. Co.	Rochester, N. Y.
Bibb's Sanitary	B. C. Bibb Stove Co.	Baltimore, Md.

FURNACE BUSINESS

(*Concluded from Page* 236)

air heating interests, and if the movement started will be correctly followed and supported by all branches of the industry, nothing but a successful 1930 can be the result."

United States Register Co.,
Battle Creek, Mich.
C. J. Pearson, Vice-President.

* * *

Furnace Business to Continue on Up-Grade

"Our personal investigations would indicate a strong market for the year 1930, and it is our opinion that the warm air furnace business will continue on the upgrade and will be of satisfactory volume next year.

Success Heater Mfg. Co.,
Des Moines, Iowa.
J. C. Mobley, General Mgr.

* * *

Stock Market Deflation Will Aid Construction

"Each year since the deflation of 1921 there has been a gradual increase in furnace buying in this western country. This increase should continue through 1930. The

Bibb's Tubular	B. C. Bibb Stove Co.	Baltimore, Md.
Bilt-Rite	Hammond Heating Co.	Cincinnati, Ohio
Black Diamond	Maple City Fdry. Co.	Monmouth, Ill.
Boynton's Champion	Boynton Furnace Co.	New York
Boynton's Climax	Boynton Furnace Co.	New York
Bovee	Bovee Furnace Works	Waterloo, Iowa
Brillion	Brillion Furnace Co.	Brillion, Wis.
Buckeye	Columbus Htg. & Vent. Co.	Columbus, Ohio
Buckeye	Barber Mfg. Co.	Ashtabula, Ohio
Buckeye King	Schill Brothers Co.	Crestline, Ohio
Buck's	Buck's Stove & Range Co.	St. Louis, Mo.
Buffalo Fresh Air Heater	P. L. Pease & Co., Inc.	Buffalo, N. Y.

C

Cable	Keystone Stove Fdry.	Spring City, Pa.
Cahill	Chattanooga Rfg. & Fdry. Co.	Chattanooga, Tenn.
Canton Special	Yost Furnace Co.	Canton, Ohio
Canton Eagle	Yost Furnace Co.	Canton, Ohio
Canton Perfect	Yost Furnace Co.	Canton, Ohio
Capital	Monroe Fdry. & Furnace Co.	Monroe, Mich.
Carco	Carr Supply Co.	Chicago
Challenge	Challenge Mfg. Co.	Ashtabula, Ohio
Champion	Boynton Furnace Co.	New York
Champion	Security Stove & Mfg. Co.	Kansas City, Mo.
Canton	Gost Furnace Co.	Canton, Ohio
Charter Oak	Charter Oak Stove & Range Co.	St. Louis, Mo.
Cheerful Home	Hood Furnace & Supply Co.	Corning, N. Y.
Circular Giant	Hero Furnace Co.	Chicago
Clermont	Gem Stove Co.	Dayton, Ohio
Colonial	Keeley Stove Co.	Columbia, Pa.
Colonial Household	White-Warner Co.	Taunton, Mass.
Columbia	Fuller-Warren Co.	Milwaukee, Wisc.
Columbia	Columbus Heating & Vent. Co.	Columbus, Ohio
Columbian Banner	Keeley Stove Co.	Columbia, Pa.
Columbus	Columbus Htg. & Vent Co.	Columbus, Ohio
Comet	Keeley Stove Co.	Columbia, Pa.
Comet	Stamford Fdry. Co.	Stamford, Conn.
Comet	Brand Stove Co.	Milwaukee, Wisc.
Comfort	Black Furnace Co.	Mt. Vernon, Ohio
Comfort	Graff Furnace Co.	New York
Comfort	Security Stove & Mfg. Co.	Kansas City, Mo.
Cottage	Hood Furnace & Supply Co.	Corning, N. Y.
Count	International Heater Co.	Utica, N. Y.
Crawford	Walker-Pratt Mfg. Co.	Boston, Mass.
Crescent	Thatcher Co.	Newark, N. J.
Crescent Household	White-Warner Co.	Taunton, Mass.
Crown	March-Brownback Stove Co.	Pottstown, Pa.
Crown Kineo	Noyes & Nutter Mfg. Co.	Bangor, Maine

D

Defender	Monroe Fdry. & Furnace Co.	Monroe, Mich.
Dighton	Dighton Furn. Co.	North Dighton, Mass.
Dobbins	Simons-Leedle Furn. Co.	Marshall, Mich.
Duke	International Heater Co.	Utica, N. Y.

E

Earl	International Heater Co.	Utica, N. Y.
Etna	Stove & Range Co. of Pittsburgh	Pittsburgh, Pa.
Eclipse	Buckalter Stove Co.	Royersford, Pa.
Eclipse Duplex	Buckwalter Stove Co.	Royersford, Pa.
Eclipse Junior	Buckwalter Stove Co.	Royersford, Pa.
Emperor	Bergstrom Stove Co.	Neenah, Wisc.
Empire	Brand Stove Co.	Milwaukee, Wisc.
Empire	International Heater Co.	Utica, N. Y.
Empire State	L. P. Smith Fdry. Co.	Fulton, N. Y.
Empire State	Kelsey Heating Co.	Syracuse, N. Y.
Equator	Walker & Pratt Mfg. Co.	Boston, Mass.
Equator	Galusha Stove Co.	Rochester, N. Y.
Estate	Estate Stove Co.	Hamilton, Ohio
Eureka	Gas Appliance Co.	Cleveland, Ohio
Eureka	Homer Furnace Co.	Coldwater, Mich.
Excelsior	I. A. Sheppard & Company	Philadelphia, Pa.

recent Wall Street deflation should help by releasing money that has been used for speculation from New York to be better employed at home to promote business and to finance building construction. We look for a better year in 1930 than 1929, notwithstanding the fact that 1929 has been a good year with us."

Campbell Heating Co.,
Des Moines, Iowa.
Horace D. Campbell,
President.

* * *

No Cause for Optimism Over 1930 Outlook

"We see no signs at the present which would indicate that 1930 would be any different than 1929 as far as business is concerned. The writer is quite fully satisfied that a program of advertising nationally is one of the most important cogs, if not the most important cog of the wheel of education which will point out to the public the desirability of warm air heating over steam and hot water.

"For 1930 we do not know just what kind of comments to make. Frankly speaking, and speaking from the point of the furnace industry, we approach 1930 with trepidation."

Homer Furnace Co.,
Coldwater, Mich.
R. W. Strong, Secy. and Treas.

* * *

Business to Go to Him Who Works Hardest and Most Intelligently in 1930

"The year 1930 is going to be a year for hard work, and the business is going to come to those who work the hardest, coupled with the most intelligence.

"We believe 1930 will prove a normal year for furnace sales and might even result in a better than average year, so far as furnace and other building material sales are concerned.

"In the first place, although residential building all over the country, according to the latest statistics I have seen, is approximately 28% below last year, our own sales are just about even, and may be a little ahead by the end of the year.

F

Famous	Brand Stove Co.	Milwaukee, Wisc.
Faultless-Comfort	Graff Furnace Co.	New York
Faultless-Lackawanna	Graff Furnace Co.	New York
Faultless Scientific	Graff Furnace Co.	New York
Favorite	Williamson Heater Co.	Cincinnati, Ohio
Fire King	Security Stove & Mfg. Co.	Kansas City, Mo.
Fire King	A. Weiskettle Son	Baltimore, Md.
Fireside	R. J. Schwab & Sons Co.	Milwaukee, Wisc.
Floral City	Floral City Heater Co.	Monroe, Mich.
Florida	Henry Furnace & Fdry. Co.	Cleveland, Ohio
Forced Draft Heater	Germer Stove Co.	Erie, Pa.
Forest City	Forest City-Walworth Run Foundries Co.	Cleveland
Fortune	Abram Cox Stove Co.	Philadelphia, Pa.
Fox	Fox Furnace Co.	Elyria, Ohio

G

Gabriel	Gabriel Tubular Steel Furnace Co.	Tacoma, Wash.
Genesee	Galusha Stove Co.	Rochester, N. Y.
Gladiator	Patric Furnace Co.	Springfield, Ohio
Glenwood	Weir Stove Co.	Taunton, Mass.
Globe	Globe Stove & Range Co.	Kokomo, Ind.
Golden Rule	A. Weiskettle & Sons	Baltimore, Md.
Gonan	Quinn Wire & Iron Works	Boone, Iowa
Good Luck	Stove & Range Co. of Pittsburgh	Pittsburgh, Pa.
Grand Idea	Schill Brothers Co.	Crestline, Ohio
Grand Empire	Schill Brothers Co.	Crestline, Ohio
Great Bell	American Bell & Fdry Co.	Northville, Mich.
Great Northern	Wells Furnace & Supply Co.	St. Louis, Mo.
Green Base Heater	Green Fdry. & Furnace Works	Des Moines, Ia.
Green Progressive	Green Fdry. & Furnace Works	Des Moines, Ia.
Green Cottage Comfort	Green Fdry. & Furnace Works	Des Moines, Ia.
Green Wood	Green Fdry. & Furnace Works	Des Moines, Ia.

H

Hammond	Hammond Heating Co.	Cincinnati, Ohio
Happy Thought	Pittston Stove Co.	Pittston, Pa.
Haynes-Drafter	Langenberg Mfg. Co.	St. Louis, Mo.
Heat-O	Heating Systems Supply Co.	Joliet, Ill.
Hess Cottage	Hess Warming & Ventilating Co.	Chicago, Ill.
Hess Welded Steel	Hess Warming & Ventilating Co.	Chicago, Ill.
Hiawatha	Black Furnace Co.	Mt. Vernon, Ohio
High Efficiency	Gas Appliance Co.	Cleveland, Ohio
Holland	Holland Furnace Co.	Holland, Mich.
Home	Home Furnace Co.	Holland, Mich.
Home Air Blast Heater	Germer Stove Co.	Erie, Pa.
Home Comfort	Wrought Iron Range Co.	St. Louis, Mo.
Homer	Homer Furnace Co.	Homer, Mich.
Home Riverside	Rock Island Stove Co.	Rock Island, Ill.
Homstead-Sterling	Still Stove Wks.	Rochester, N. Y.
Honest John	Kyle Mfg. Co.	Lancaster, Ohio
Howard	International Heater Co.	Utica, N. Y.
Howard Overdraft	Howard Stove Wks.	Ralston, Neb.
Household	White-Warner Co.	Tauton, Mass.
Hot Blast	Robinson Furnace Co.	Chicago, Ill.
Hummer	R. J. Schwab & Sons	Milwaukee, Wis.
Hustler	National Furnace Co.	Dayton, Ohio

I

Ideal Novelty	Abraham Cox Stove Co.	Philadelphia, Pa.
Imperial	Forest City Fdry. & Mfg. Co.	Cleveland, Ohio
Imperial	Albert Lee Fdry. Co.	Albert Lee, Minn.
Imperial	Hart & Crouse Co.	Utica, N. Y.
Imperial	Imperial Furnace Co.	Marshalltown, Iowa
Improved	R. J. Schwab & Sons Co.	Milwaukee, Wis.
Intense	Carhart Bros. Foundry	Syracuse, N. Y.
Interstate	Interstate Mfg. Co.	Oskaloosa, Iowa
Invader	Union Stove Wks.	New York

J

Jahant Down Shaft	Jahant Htg. Co.	Akron, Ohio
Jahant Colonial	Jahant Htg. Co.	Akron, Ohio
Jarvis	Ideal Furnace Co.	Detroit, Mich.
Jiffy	Moore Bros. Co.	Joliet, Ill.

"Secondly, outside of local conditions where one or more cities may be temporarily overbuilt, there should be a great revival of residential building during the next few years.

"Third, the home modernizing idea has taken hold in many parts of the country, and the only snag it hit this year was the fact that money was not available for financing.

"Fourth, President Hoover, in his effort to restore business confidence, has recommended building projects by government and large industries, and has received pledges from state governors, as well as from heads of big business, that their building projects will in many cases be above the average during 1930. While this, of course, does not directly affect residential building, it does indirectly, because it puts more money into circulation, causes more people to be employed of the class who become customers of the warm air heating industry.

"Fifth, there is an old saying, 'Easy come, easy go.' When people are making large profits, even only on paper, they spend freely and not necessarily wisely.

"Finally, although the newspapers still feature the news of the stock market, and although it is still a topic of conversation, it is beginning to penetrate to our consciousness that outside of a few large cities, the number actually affected unfavorably by the crash is so small that they can very well be disregarded.

Langenberg Manufacturing Co.
J. J. Walsh, Secretary.

* * *

Opportunity for Increased Furnace Business Never Better

"You realize, of course, that I am not a prophet or the son of a prophet, and anything I have to say will be based upon my own judgment, formed by observation and close contact with the industry.

"There never has been a time during my experience in the warm air heating field when the industry was in as favorable a situation to go out and command the bulk of the

K

Kelsey	Kelsey Htg. Co.	Syracuse, N. Y.
Kelsey Health	Kelsey Htg. Co.	Syracuse, N. Y.
Kelsey Warm	Kelsey Htg. Co.	Syracuse, N. Y.
Kineo	Noyes & Nutter Mfg. Co.	Bangor, Maine.
King	Oakland Fdry. Co.	Belleville, Ill.
King	Kalamazoo Stove Co.	Kalamazoo, Mich.

L

Lakewood	Walker & Pratt Mfg. Co.	Boston, Mass.
Laurel	Art Stove Co.	Detroit, Mich.
Leader Steel	Hess Warming & Vtg. Co.	Chicago, Ill.
Lehigh	Lehigh Stove & Htg. Co.	Lehighton, Pa.
Lexington	Culter & Proctor Stove Co.	Peoria, Ill.
Liberty Gilt Edge	R. J. Schwab & Sons Co.	Milwaukee, Wis.
Lion	Victor Stove Co.	Salem, Ohio
Little Giant	Hero Furnace Co.	Sycamore, Ill.
Little Giant	Richardson Boynton Co.	New York

M

Magic-Service	Somerville Stove Wks.	Somerville, N. J.
Magnet Steel	W. W. Koons	Danville, Ill.
Maltese	Hero Furnace Co.	Chicago
Manny	Manny Htg. Supply Co.	Chicago
Maple City	Maple City Fdry. Co.	Monmouth, Ill.
Marshall	Marshall Furnace Co.	Marshall, Mich.
Mrashalltown	Marshalltown Heater Co.	Marshalltown, Iowa
Marshwell	Marshall-Wells Co.	Duluth, Minn.
Marvel	Interstate Mfg. Co.	Oskaloosa, Iowa
Master	Tubular Htg. & Vtg. Co.	Philadelphia, Pa.
Master	Mt. Vernon Furn. & Mfg. Co.	Mt. Vernon, Ill.
Merrimac	Monitor Furnace Co.	Cincinnati, Ohio
Metropolitan	Graff & Co.	New York
Model	Roberts, Winner & Co.	Quakertown, Pa.
Model	Barstow Stove Co.	Providence, R. I.
Model	Grander Stove Co.	Royerford, Pa.
Modern Steel	W. W. Koons	Danville, Ill.
Modern Way	Modern Way Furnace Co.	Ft. Wayne, Ind.
Mogul	Portsmouth Stove & Range Co.	Portsmouth, Ohio
Mohico	Morrill-Higgins Co.	Omaha, Neb.
Moistair	Beckwith Co.	Dowagiac, Mich.
Monitor	Keith Foundry Co.	Des Moins, Iowa
Monopipe	Excelsior Steel Furn. Co.	Chicago, Ill.
Monroe	Kelsey Mtg. Co.	Syracuse, N. Y.

N

New Blaze	Tubular Htg. & Vtg. Co.	Philadelphia, Pa.
New England	Walker & Pratt Mfg. Co.	Boston, Mass.
New Era	Keystone Stove Fdry.	Spring City, Pa.
New Feed Underfeed	Williamson Heater Co.	Cincinnati, Ohio
New Home	Hood Furnace & Supply Co.	Corning, N. Y.
New Idea	Isaac Shepard Co.	Philadelphia, Pa.
New Model	Roberts, Winner & Co.	Quakertown, Pa.
New Way	Dowagiac Drill Co.	Dowagiac, Mich.
Noll	Noll Furnace Co.	Youngstown, Ohio
Norfolk	New Fdry. & Mfg. Co.	Sioux City, Iowa
Norman	Galusha Stove Co.	Rochester, N. Y.
Norwich	Portland Fdry. Co.	Portland, Conn.
Novelty	Abraham Cox Stove Co.	Philadelphia, Pa.
N. P. Sterling	Sill Stove Wks.	Rochester, N. Y.

O

Ohio	Columbus Htg. & Vtg. Co.	Columbus, Ohio
Oil-Craft	Cole Mfg. Co.	Chicago, Ill.
O. K.	Columbus Htg. & Vtg. Co.	Columbus, Ohio
O. K.	Schill Bros. Co.	Crestline, Ohio
O. K. Master	O. K. Stove & Range Co.	Louisville, Ky.
Old Faithful	Myers Bros.	Canal Dover, Ohio
Onondaga	Syracuse Heater Co.	Syracuse, N. Y.
Orbon	Orbon Stove Co.	Belleville, Ill.
Oriole	Sexton Stove & Mfg. Co.	Baltimore, Md.
Our Home	Hood Furnace & Supply Co.	Corning, N. Y.
Overdraft	Howard Stove & Furnace Co.	Omaha, Neb.
Overland	Boynton Furnace Co.	New York

heating business, especially for home heating, as it is at the present writing. I enumerate below the influences I think will have a direct bearing on the volume of business for next year:

"First, enormous sums of capital have been released from stock market gambling and a great portion of it will be used in the building industry during 1930.

"Second, the public generally is gradually being educated to the idea that air conditioning is a vital thing in every home, and the only way you can have proper air condition in the home in connection with the heating plant is by using warm air.

"If it were possible for the industry properly to advertise the advantages of warm air over other heating systems, based upon absolute fact, there isn't any reason in the world but that within five years we would be selling a million and a half furnaces a year in the United States instead of 500,000 as at present. To produce this result the manufacturer must do certain things:

"First, he must see to it that the public knows about warm air heating through advertising.

"Second, he must see to it that no furnace is furnished a consumer that doesn't give satisfaction, and the only way to do that is to have competent engineers and installers to put the warm air heater in a consumer's home.

"The above observations lead me to but one conclusion and that is, 1930 will be a better year from the standpoint of warm air furnaces in both volume and quality of the job than has been any previous year in the history of the industry."

A. P. Lamneck,
Sec'y & Treas., The W. E. Lamneck Co.

* * *

Many Factors Working Toward Better Furnace Business for 1930.

"The warm air furnace industry has shown material improvement in 1929 over 1927 and 1928. The volume, generally speaking, has shown a slight increase and prices

MR. DONALD MacGREGOR

The Copper & Brass Research Association announces the opening of a Southern office in the Shoreham Building, Washington, D. C. It will be under the direction of Mr. Donald MacGregor.

The Southern office of the Association will co-operate with the trade in Middle and South Atlantic States.

COPPER & BRASS
RESEARCH ASSOCIATION

25 Broadway, New York

Midwestern Office:	*Southern Office:*	*Canadian Office:*	*Pacific Coast Office:*
Landreth Building	Shoreham Building	67 Yonge Street	Architects Building
St. Louis, Mo.	Washington, D. C.	Toronto, Canada	Los Angeles, Calif.

P

Pacific	Thatcher Co.	Newark, N. J.
Pacific System	C. H. Sharp Mfg. Co.	Los Angeles, Calif.
Paragon	Isaac A. Sheppard Co.	Philadelphia, Pa.
Paramount	Syracuse Heater Co.	Syracuse, N. Y.
Patric	Patric Furnace Co.	Springfield, Ohio
Patriot	Boynton Furnace Co.	New York
Pawnee	Schill Bros. Co.	Crestline, Ohio
Pease-Economy	International Heater Co.	Utica, N. Y.
Peerless	B. C. Bibb Stove Co.	Baltimore, Md.
Peerless	Forest City Fdry. & Mfg. Co.	Cleveland, Ohio
Peerless	Peerless Fdry Co.	Indianapolis, Ind.
Peninsular	Peninsular Stove Co.	Detroit, Mich.
Penna Comfort	Mt. Penn Stove Wks.	Reading, Pa.
Penna Dora	Mt. Penn Stove Wks.	Reading, Pa.
Penna Floor Heater	Penna. Furnace & Stove Co.	Warren, Pa.
Penna Gas	Penna. Furnace & Stove Co.	Warren, Pa.
Penna Perfect	Mt. Penn Stove Wks.	Reading, Pa.
Penna Stove Furnace	Penna. Furnace & Stove Co.	Warren, Pa.
Phoenix	Galusha Stove Co.	Rochester, N. Y.
Pittston	Pittston Stove Co.	Pittston, Pa.
Plant	Thatcher Co.	Newark, N. J.
Pleasant Home	Peerless Foundry Co.	Indianapolis, Ind.
Popular	Gas Appliance Co.	Cleveland, O.
Primo	E. C. Worrell	Morrestown, N. J.
Princess	International Heater Co.	Utica, N. Y.
Progressive	Richardson-Boynton Co.	New York
Pyramid	Forest City Fdry. & Mfg. Co.	Cleveland, O.

Q

Quaker	Quaker Mfg. Co.	Chicago
Quality	May-Fieberger Co.	Akron, Ohio
Quality	Stiglitz Furnace Co.	Louisville, Ky.
Quality	Quality Stove & Range Co.	Belleville, Ill.

R

Radiant	Downing Htg. & Supply Co.	Milwaukee, Wis.
Radiant Home	Germer Stove Co.	Erie, Pa.
Radio Enterprise	Phillips & Bottorff Mfg. Co.	Nashville, Tenn.
Radio	Schill Bros. Co.	Crestline, Ohio
Radiola	Waterman-Waterbury Co.	Minneapolis, Minn.
Radium	Schill Bros. Co.	Crestline, Ohio
Red Jacket	Portland Foundry Co.	Portland, Conn.
Regal Kineo	Noyes & Nutter Mfg. Co.	Bangor, Maine
Regent	International Heater Co.	Utica, N. Y.
Reliable	Robinson Furnace Co.	Chicago, Ill.
Renown	Independent Stove Co.	Owosso, Mich.
Richardson	Richardson-Boynton Co.	New York
Rival	Graff Furnace Co.	New York
Riverside Comfort	Rock Island Stove Co.	Rock Island, Ill.
Riverside Hot-Blast	Roesch-Kalb Co.	Rock Island, Ill.
Robinson	Robinson Furnace Co.	Chicago, Ill.
Robinson Welded Steel	A. H. Robinson Co.	Cleveland, Ohio
Rocky Mountain Queen	Marshalltown Furnace Co.	Marshalltown, Iowa
Rocky Mountain King	Marshalltown Furnace Co.	Marshalltown, Iowa
Roesch	Rock Island Stove Co.	Belleville, Ill.
Royal	Bergstrom Stove Co.	Neenah, Wis.
Rybolt	Rybolt Heater Co.	Ashland, Ohio

S

Sanitair	Standard School Heater Co.	Chicago, Ill.
Scheible	Scheible-Moncrief Heater Co.	Cleveland, Ohio
Seamless	Waterman-Waterbury Co.	Minneapolis, Minn.
Senator	Welston Mfg. Co.	Wellston, Ohio
Scientific	Dowagiac Mfg. Co.	Dowagiac, Mich.
Simplex	Wise Furnace Co.	Akron, Ohio
Slayter Unit	James Slayter	Lafayette, Ind.
Solar	Enterprise Foundry Co.	Belleville, Ill.
Solar	Roberts, Winner & Co.	Quakertown, Pa.
Solar Eclipse	Buckwalter Stove Co.	Royersford, Pa.
Spear Anti-Clinker	James Spear Stove & Htg. Co.	Philadelphia, Pa.
Specialty	Abram Cox Stove Co.	Philadelphia, Pa.
Square Pot Admiral	Boynton Furnace Co.	New York
Square Pot Crusader	Boynton Furnace Co.	New York

have been generally steadier throughout the latter half of the year.

"As we close the old year prospects for 1930 are as optimistic as they have ever been in the heating industry. The formation of the Warm Air Heating Institute, the aims of which will be to stabilize price and iron out the evils which have existed in our industry, will undoubtedly do every manufacturing member of the warm air heating industry a tremendous amount of good.

"Prices will be published for everyone to see, evil practices will be condemned, and good practices brought to light for the whole industry to see and act upon.

"The contemplated advertising campaign promoted and sponsored by the Warm Air Heating Association cannot fail to create interest which the warm air industry has certainly not created in the past. The accumulated effort of the association, with the backing of the manufacturers, and with the still further backing of the dealers, will pyramid a campaign which will reach into every corner of the United States and make the general public conscious of the fact that there still exists not only heating by warm air but heating by modernized guaranteed warm air.

Richardson & Boynton Co.,
New York City.
H. T. RICHARDSON,
Vice President.

* * *

Warm Air Gaining in Public Estimation

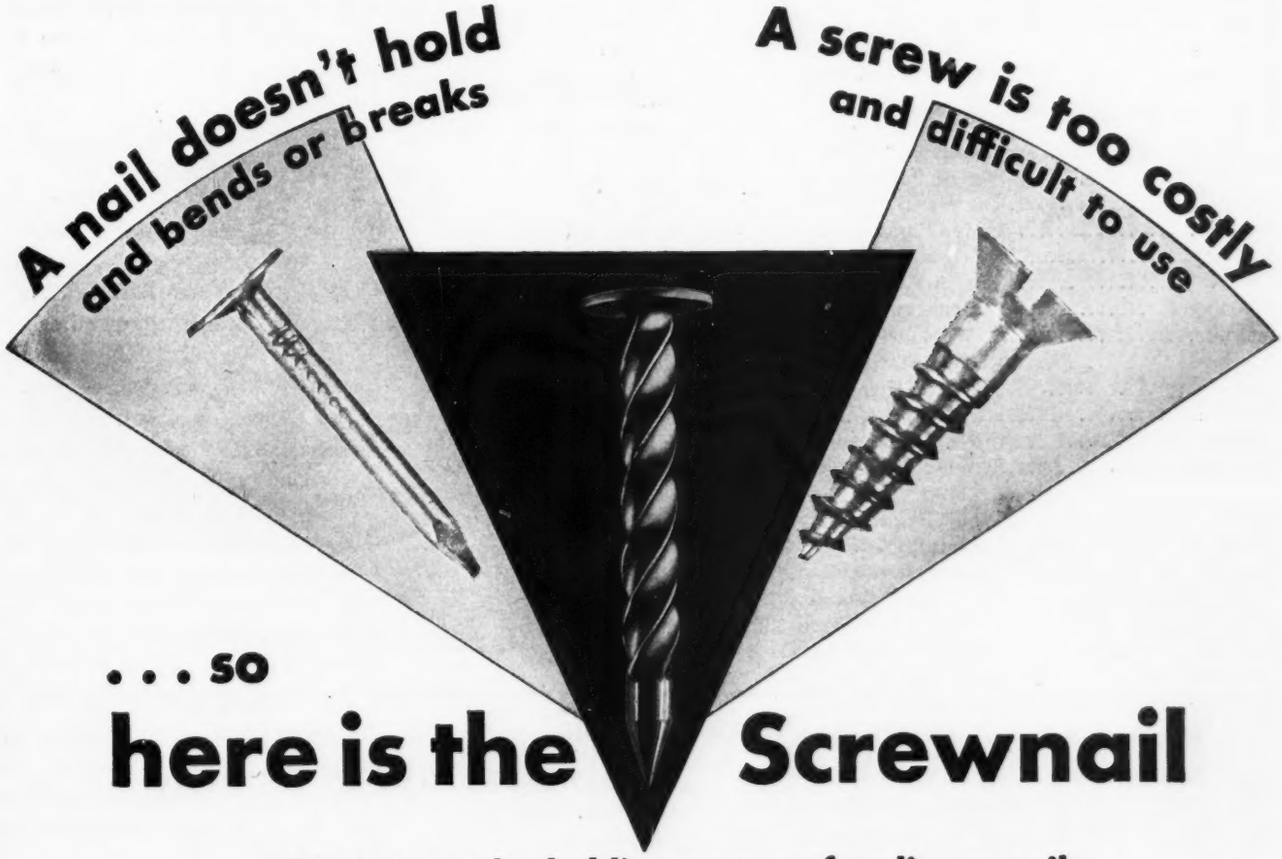
"Prospects look good for 1930 in the warm air heating business.

"Warm air heating stands higher today in the public's estimation than ever before.

"The fundamental conditions are sound and there seem to be no existing reasons why 1930 should not be a prosperous year for those interested in the warm air furnace industry."

American Foundry & Furnace Co.,
Bloomington, Ill.
By L. G. Whittmer, President.

FOR FASTENING SHEET METAL TO WOOD



. . . so here is the Screwnail

...with 4 times the holding power of ordinary nails
...made so that it will not bend or break

BOTH common nails and wood screws are unsatisfactory makeshifts for fastening sheet metal to wood. You'll agree, though, that a combination of both would give you an ideal device for such work—a device that would drive like a nail, but hold like a screw.

Here it is—the Hardened Screwnail! Combines the driving qualities of a nail and the holding qualities of a screw. Designed expressly for fastening sheet metal to wood.

You can drive a Screwnail through sheet metal into wood much more easily and quickly than a common nail because of the hardened needle point. And having great tensile and shear strength it does not bend or break readily like a common nail.

Once in, the Screwnail *stays in.* It will not back out or pull out or loosen. Laboratory tests prove that Screwnails have over 4 times the holding power of ordinary nails.

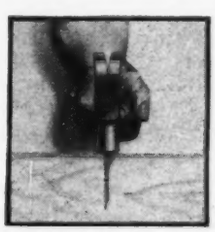
Sheet metal workers are finding this new Nail superior for every job where sheet metal must be securely fastened to wood. Try them on your own work—we'll provide free samples for a test. Just tell us what you want to fasten.

1. No need to punch a hole...sharp needle point pierces sheet metal with ease.

PARKER-KALON CORPORATION
190 Varick Street New York, N.Y.

PARKER-KALON
HARDENED
*Screw*nails

PATENTED JAN. 29, 1924 - No. 1482151
OTHER PATENTS PENDING



2. Hardened spiral thread forms a thread in sheet metal and wood. Anchors sheet metal securely to wood.

Square Pot New Gas	Boynton Furnace Co.	New York
Square Pot Steel Dome	Boynton Furnace Co.	New York
Standard	Giblin & Co.	Utica N. Y.
Standard	Magee Furnace Co.	Taunton, Mass.
Standard	Standard School Heater Co.	Chicago, Ill.
Standard	Sexton Stove & Mfg. Co.	Baltimore, Md.
Star	Security Stove & Mfg. Co.	Kansas City, Mo.
Star	Star Foundry Co.	Evansville, Ind.
Steel	International Heater Co.	Utica, N. Y.
Sterling	Sterling Range & Furn. Corp.	Rochester, N. Y.
Storm King	The Union Stove Works	New York
Strokel	Homer Furnace Co.	Homer, Mich.
Success	Richardson & Boynton Co.	New York
Summit	Summit Foundry Co.	Geneva, N. Y.
Sun Ray	Chattanooga Rfg. & Fdry. Co.	Chattanooga, Tenn.
Sunrise	A. Weiskittel & Son Co.	Baltimore, Md.
Sunshine	Reading Stove Works	Reading, Pa.
Surety	St. Louis Htg. Co.	St. Louis, Mo.
Surprise	Marshall Furnace Co.	Marshall, Mich.
Syphon	Cribbon & Sexton Co.	Chicago, Ill.
Syracuse	Syracuse Heater Co.	Syracuse, N. Y.

T

Taplin	Taplin Furnace Co.	Grand Rapids, Mich.
Thrift	Summit Stove Wks.	Morrison, Ill.
Tiger	Floyd-Wells Co.	Royersford, Pa.
Torrid Sunshine	Orr Painter Co.	Reading, Pa.
Tremont	Stove & Range Co. of Pittsburgh.	Pittsburgh, Pa.
Triumph	Craig-Reynolds Fdry. Co.	
Triumph	Duffy-Trowbridge Co.	Hannibal, Mo.
Tropic Sunshine	Orr Painter & Co.	Reading, Pa.
XXth Century	XXth Century Htg. & Vtg. Co.	Akron, Ohio

U

Under Feed	Hammond Heating Co.	Cincinnati, Ohio
Under Feed	Williamson Htg. Co.	Cincinnati, Ohio
Universal	Cribben & Sexton Co.	Chicago, Ill.

V

Vacuum	Morrill-Higgins Co.	Omaha, Neb.
Vasco	V. A. Smith Co.	Chicago, Ill.
Victor	La Plant Co.	Marshalltown, Iowa
Venois	Mt. Vernon Furn. & Mfg. Co.	Mt. Vernon, Ill.
Victor	Simons-Leedle Furnace Co.	Marshall, Mich.
Victor	S. B. Sexton Stove & Mfg. Co.	Baltimore, Md.
Victory	Williamson Heater Co.	Cincinnati, Ohio
Vulcan	Ideal Heating Co.	Columbus, Ohio
Vulcan	Kalamazoo Stove Co.	Kalamazoo, Mich.

W

Waldron Heater	Brien Heater Co.	Westfield, Mass.
Walker	Walker & Pratt Mfg. Co.	Boston, Mass.
Warm Home	Meyer Furnace Co.	Peoria, Ill.
Waterbury Seamless	Waterman-Waterbury Co.	Minneapolis, Minn.
Weir	Myer Furnace Co.	Peoria, Ill.
Western	Western Steel Products Co.	Duluth, Minn.
Wheeler-Kernan	International Heater Co.	Utica, N. Y.
Winner	Thatcher Co.	Newark, N. J.
Winner	Langenberg Mfg. Co.	St. Louis, Mo.
Winthrop	Deighton Foundry Co.	Deighton, Mass.
Wonder	Decatur Foundry Co.	Decatur, Ill
Wonder	H. A. Link & Co.	Portsmouth, Ohio

Y

Young	Portland Foundry Co.	Portland, Conn.

Z

Zenith	Howard Stove Co.	Beaver Falls, Pa.
Zenith	Marshall-Wells Co.	Duluth, Minn.

New Institute Effort Making for Better Business.

"Our company increased its sales volume 35 per cent during the year just ending. This we believe indicates two things—first, that a creditable volume can be had by working for it and, second, that steel furnaces are in greater demand.

"For 1930, we predict a similar experience. Our goal is another 35 per cent increase and we are already well on our way to accomplish this, through having a very healthy list of prospects, our share of which we will close.

Armstrong Furnace Company,
Columbus, Ohio.
P. H. HAMMOND,
President.

* * *

Gas-Fired Warm Air Heating Installations Forging Ahead

"During the year 1929 there has been a satisfactory increase in the volume of gas-fired warm air furnace business, and we anticipate a corresponding increase for 1930.

"A statement issued by F. W. Dodge Corporation on November 18th indicated that the volume of new residential construction for 1929 was approximately 25 per cent less than for the year 1928. As far as new building goes, we have gone through a year of depression, but in spite of this the volume of sales of warm air furnaces, designed for gas fuel, increased approximately 25 per cent.

The Bryant Heater & Mfg. Co.,
Cleveland, Ohio.
Edward P. Bailey, Jr., President.

* * *

Automatic Heating Appealing to Public

"Projecting the trend of 1928 and 1929 makes 1930 look like a good year for warm air heating in the Philadelphia metropolitan district.

"The advantages of automatic air heat, along with better furnace fans, filters and humidification, are attracting the interest of the most conservative people."

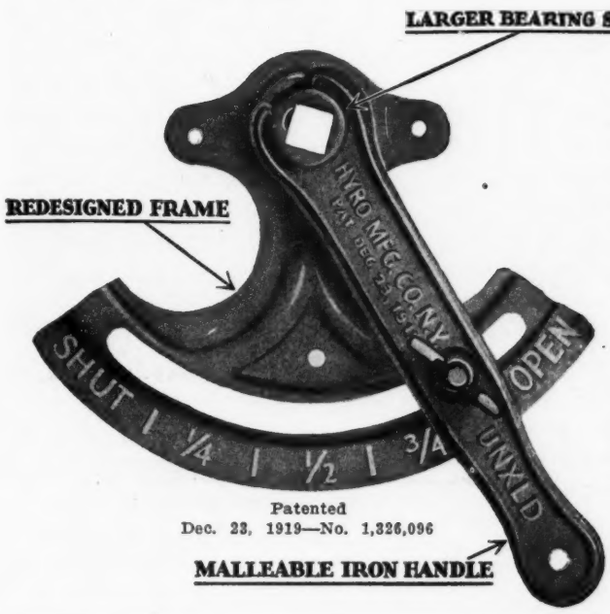
James Spear Stove & Heating Co.,
Philadelphia, Pa.
W. J. R. Taylor.

* * *

Have Experienced No Difficulty in Introducing New Prices.

"In regard to 1930 business, naturally we cannot speak authoritatively for our entire trade, but nevertheless we have recently been in contact with representative accounts which indicate a trend toward improved conditions.

THE IMPROVED HYRO "UNXLD" DAMPER QUADRANT



A New Quadrant for regulating dampers in hot and cold air ducts, blower systems, etc., with these improvements:

LARGER BEARING SURFACE. The new type quadrant provides a much larger bearing surface for the rod, eliminating the possibility of the rod slipping out, and also doing away with the objectionable rattling of the damper.

MALLEABLE IRON HANDLE. The handle of the new quadrant is made of malleable iron. It is more rigid than the old handle and makes a much neater installation.

REDESIGNED FRAME. The frame of the ⅜" quadrant is smaller than that of the old model. This size was determined to be the most practical for regulating dampers that require a ⅜" quadrant. The frame of the ½" quadrant will remain the same size.

HYRO DIAL DAMPER REGULATOR

Patented Dec. 9, 1919
No. 1,324,620

Here is another practical and efficient device for regulating small and medium size dampers in hot and cold air ducts, blow pipes, etc. It was designed to meet the demand for a less costly damper regulator than our "Unxld" Damper Quadrant.

The Hyro Dial Damper Regulator is of very simple construction. It is easily and quickly attached to either curved or flat surfaces. It requires only two bolts or rivets to hold it absolutely rigid.

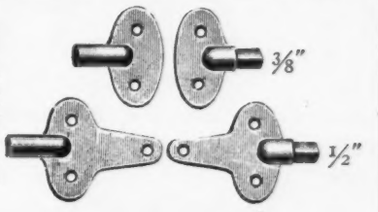
The graduated dial shows at a glance the exact position of the damper in the duct.

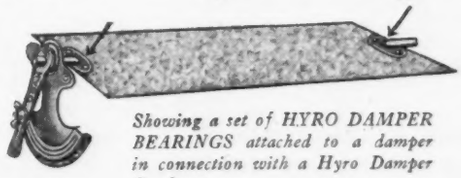
When tightened, the wing-nut locks the damper in the desired position, giving absolute control of the passage of air.

Made of steel to fit ⅜" square rod or Hyro Damper Bearings. Furnished in an electro-galvanized finish only.

HYRO DAMPER BEARINGS

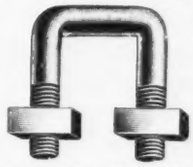
Used instead of rods on small and medium size dampers. Quickly attached. Made in two sizes—⅜" to fit ¾" Damper Quadrants or Dial Damper Regulators and ½" to fit ½" Damper Quadrants. Furnished in galvanized finish only.





Showing a set of HYRO DAMPER BEARINGS attached to a damper in connection with a Hyro Damper Quadrant.

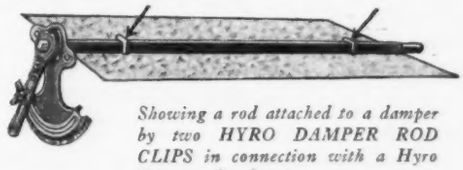
HYRO DAMPER ROD CLIP



Offers a quick and easy means of fastening square rod to dampers.

Easy, because the rod is fastened firmly to the damper without drilling—and consequent weakening of the rod. And quick, because the drilling operation is eliminated. Made for the following sizes of square rod: ⅜", ½", ⅝", ¾" and ⅞". Furnished in galvanized finish only.

Patented April 4, 1922
No. 1,411,945



Showing a rod attached to a damper by two HYRO DAMPER ROD CLIPS in connection with a Hyro Damper Quadrant.

Other HYRO Time-and-Labor Saving DAMPER ACCESSORIES

HYRO MANUFACTURING COMPANY, Inc.

202 VARICK STREET **NEW YORK**

"Frankly, we have already published our 1930 price list in accordance with the rules adopted at the Cleveland meetings of the Warm Air Furnace Institute and thus far have experienced no difficulty in introducing this proposition to our trade.

Standard Foundry & Furnace Co.
De Kalb, Ill.
R. S. PATTEN,
Sales Manager.

* * *

Small Building Increase Assured for 1930

"It is our belief that 1930 will be an exceptionally good warm air furnace year. We believe that the reaction to the recent downfall of the stock market will be more activity in building and in real estate. This has always happened in the past, and since history usually repeats itself, we feel safe in predicting that there will be more residential, particularly speculative building, during 1930.

"In conclusion, we would say that it is our belief that the furnace business will be increased immensely during 1930 over what it was in 1929."

L. J. Mueller Furnace Co.
Milwaukee, Wis.,
H. P. Mueller, Director of Sales.

* * *

Money Released from New York Will Go Into Building

"As we view the outlook for 1930 at this time, based on reports from our factory representatives throughout the eastern states, the situation looks far more favorable than it has at any time this year. The shakeout in the stock market this fall, without question, had a bad effect on the furnace business along with many other industries.

"That situation seems to be adjusting itself in a way that soon after the first of the year money which had gone from country banks all over the country into New York City, to be loaned on call at rates running anywhere from 8 to 20 per cent, will flow back to the source of origin, and will in that way benefit local communities that have been, all through the fall, handicapped in building operations by reason of scarcity of or high rates asked for money.

Lennox Furnace Co., Inc.,
Syracuse, N. Y.
C. H. Schechter, Sales Manager.

* * *

"The most interesting and we believe the most encouraging feature of the warm air heating business is the rapid strides being made in the fan blast heating systems in all types of buildings. The sale of our Roto-Blast tubular furnace for heating large buildings of all kinds by means of fan furnace system has increased greatly this year, and every indication points to a rapidly expanding market in 1930."

Moncrief Furnace Co.,
Atlanta, Ga.
L. F. Kent, President.

* * *

"We are very glad to state that, although conditions in some parts of the country are not as favorable as we would like to see them, we have some very encouraging reports covering possible building activity for next year from some of our territories and anticipate a satisfactory business during the coming season."

Kelsey Heating Co.,
Syracuse, N. Y.
R. H. Bradley, General Sales Dept.

* * *

"We have very little information in our possession at this time to give us much of an idea as to what the furnace business is going to be in 1930.

"We find, however, that there are very few of our dealers who have any number of furnaces on hand at the present time, and if house building operations improve next year, it ought to mean the sale of more furnaces."

The Hess-Snyder Co.,
Massillon, Ohio.
F. H. Snyder, President.

* * *

"Indications point to a substantial increase in volume in business during 1930 in warm air heating, which should be booked on a much more stable basis than has been prevalent for the past two years.

"The factors which contribute to these conclusions are reports of increased building programs from many sections of the country. The

The Graff Furnace Co.,
Chas. P. Forshew, President,
Scranton, Pa.

* * *

"We look for an increased demand for the better grade of warm air heating installations. We find that the public is gradually realizing the superiority in forced warm air heating over any other heating medium and as a result we are strongly of the opinion that the greatest future in the furnace industry lies in this field.

"We are looking forward to the coming year with confidence."

Western Furnaces, Inc.,
D. S. Robinson, President,
Tacoma, Wash.

* * *

"At this writing we have more business than we have had in former years for a like period.

"Orders are coming in constantly. Usually the heating business is 'done' about Thanksgiving.

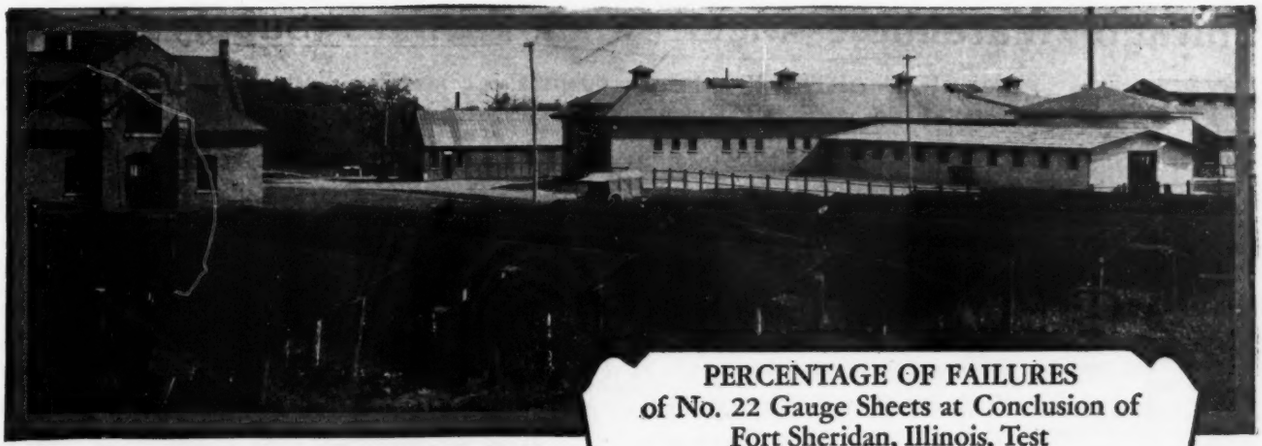
"The sale of furnaces depends very much on residence building construction, of which there has not been a great deal during the last twelve months. However, I confidently believe that there will be considerable more building in 1930 than there was in 1929.

F. Meyer & Bro. Co.,
Geo. Harms, Secretary,
Peoria, Ill.

* * *

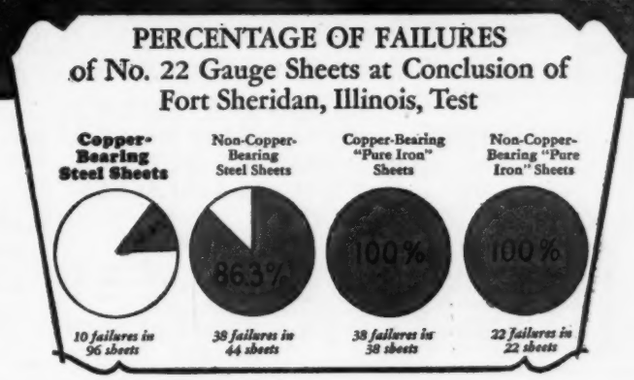
"I am very encouraged over the 1930 furnace outlook. Manufacturers have made great improvements in the design and efficiency of their product and warm air heating today is recognized as the most scientific way to heat the American home. Building operations will show a substantial increase, because of easier money rates. I believe the aggressive furnace dealers will be able to sell more heating systems during 1930 than they have for the past several years."

Liberty Foundry Company,
Wm. T. Mellow, Vice President,
Saint Louis, Mo.



STEEL SHEETS ON TEST RACKS AT FORT SHERIDAN, ILL.

For more than 11 years rain, snow, sun and dew conspired to destroy the steel sheets exposed under the auspices of the American Society for Testing Materials at this large testing ground. The result of this test supplied us with the FACTS of longer life and greater service which we are constantly passing on to you.



INLAND Copper Alloy STEEL SHEETS

The chart above tells only part of the story. The user should know that if the test had ended six months earlier, it would have left all of the copper bearing steel sheets intact, as the first failure appeared only at the final inspection. The user should know also that the first failure took place in the non-copper-bearing steel sheets at 32 months, in non-copper-bearing "pure iron" at 48, in copper bearing "pure iron" at 101—and not until *132 months* in the copper bearing steel sheets.

A study of the official report on this test shows that copper bearing steel sheets were superior in resisting corrosion and that they lasted three to five times as long as other sheets.

INLAND Copper Alloy STEEL

The whole story of INLAND Copper Alloy STEEL SHEETS is presented in complete and interesting fashion in our booklet. Ask for it.

INLAND Copper Alloy STEEL

Contributing Member Sheet Steel Trade Extension Committee.

Branch Offices
Kansas City
Milwaukee
St. Louis
St. Paul

INLAND STEEL COMPANY
38 South Dearborn Street
Chicago

Works
Chicago Heights, Illinois
Indiana Harbor, Indiana
Milwaukee, Wisconsin

SHEETS BARS PLATES SHAPES RAILS TRACK ACCESSORIES RIVETS BILLETS

Chicago Warehouse Metal and Furnace Supply Prices

AMERICAN ARTISAN is the only publication containing Western Metal, Furnace Supply and Hardware prices corrected weekly

Note: These Prices Are Chicago Warehouse Prices of Metal, to Which Must Be Added Freight to Cities Outside of Chicago.

METALS

PIG IRON

Chicago Fdy., No. 2	$20 00
Southern Fdy. No. 2	21 51
Lake Superior Charcoal	27 04
Malleable	20 00

FIRST QUALITY BRIGHT CHARCOAL TIN PLATES

IC	20x28	112 sheets $22 50
IX	20x28	25 50
IXX	20x28	56 sheets 14 50
IXXX	20x28	16 50
IXXXX	20x28	17 00

TERNE PLATES

		Per Box
IC	20x28, 40-lb.	112 sheets $26 70
IX	20x28, 40-lb.	112 sheets 29 70
IC	20x28, 25-lb.	112 sheets 22 20
IX	20x28, 25-lb.	112 sheets 25 20
IC	20x28, 20-lb.	112 sheets 20 25
IX	20x28, 20-lb.	112 sheets 23 00

"ARMCO" INGOT IRON PLATES

No. 8 ga.—100 lbs.	$4 15
3/16 in.—100 lbs.	4 05
¼ in.—100 lbs.	3 85

COKE PLATES

Cokes, 80 lbs., base, 20x28	$12 00
Cokes, 90 lbs., base, 20x28	13 20
Cokes, 100 lbs., base, 20x28	13 40
Cokes, 107 lbs., base, IC 20x28	13 75
Cokes, 135 lbs., base, IX 20x28	14 75
Cokes, 155 lbs., base, 2X, 56 sheets	8 50
Cokes, 175 lbs., base 2X, 56 sheets	9 25
Cokes, 195 lbs., base 4X, 56 sheets	10 25

BLUE ANNEALED SHEETS

Base 10 ga.	per 100 lbs. $3 25
"Armco" 10 ga.	per 100 lbs. 4 15

ONE PASS COLD ROLLED BLACK

No. 18-20	per 100 lbs.	$3 85
No. 22	per 100 lbs.	4 00
No. 24	per 100 lbs.	4 05
No. 26	per 100 lbs.	4 15
No. 27	per 100 lbs.	4 20
No. 28	per 100 lbs.	4 30
No. 29	per 100 lbs.	4 45
No. 30	per 100 lbs.	4 55

"ARMCO" GALVANIZED

"Armco" 24	per 100 lbs.	$6 15

GALVANIZED

No. 16	per 100 lbs.	$4 40
No. 18	per 100 lbs.	4 55
No. 20	per 100 lbs.	4 70
No. 22	per 100 lbs.	4 75
No. 24	per 100 lbs.	4 90
No. 26	per 100 lbs.	5 15
No. 27	per 100 lbs.	5 25
No. 28	per 100 lbs.	5 40
No. 30	per 100 lbs.	5 80

BAR SOLDER

Warranted 50-50	per 100 lbs.	$28 00
48-52	per 100 lbs.	27 00
45-55	per 100 lbs.	24 50
Plumbers'	per 100 lbs.	23 00

ZINC

In Slabs	$ 7 25

SHEET ZINC

Cask Lots (600 lbs.)	$12 00
Sheet Lots	14 00

BRASS

Sheets, Chicago base	24¼c
Mill base	23¼c
Tubing, brazed, Chicago base	31½c
Mill base	30½c
Tubing, seamless, Chicago base	29¼c
Mill base	28¼c
Wire, Chicago base	24¾c
Mill base	23¾c
Rods, Chicago base	22¼c
Mill base	21¼c

COPPER

Sheets, Chicago base	27¾c
Mill base	26¾c
Tubing, seamless, Chicago base	30¼c
Mill base	29¼c
Wire, plain rd., B. & S. Ga. and heavier	25¾c

LEAD

American Pig	$7 00
Bar	8 00

TIN

Bar Tin	per 100 lbs. $46 00
Pig Tin	per 100 lbs. 45 00

HARDWARE, SHEET METAL SUPPLIES, WARM AIR FURNACE FITTINGS AND ACCESSORIES.

ASBESTOS

Paper up to 1/16	6c per lb.
Roll board	7½c per lb.
Mill board 3/32 to ⅛	7½c per lb.
Corrugated Paper (250 sq. ft. to roll)	$6 00 per roll

BRUSHES

Furnace Pipe Cleaning Bristle with handle	each $0 75
Flue Cleaning Steel only	each 1 25

CEMENT, FURNACE

American Seal, 5-lb. cans, net	$ 45
American Seal, 10-lb. cans, net	85
American Seal, 25-lb. cans, net	2 25
Pecora	per 100 lbs. 7 50

CHIMNEY TOPS

Adams' Revolving	Wt. Doz.	Price Doz.
4 in.	21 lbs.	$11 00
6 in.	24 lbs.	11 50
7 in.	30 lbs.	13 50
8 in.	33 lbs.	15 00
9 in.	51 lbs.	16 50
10 in.	56 lbs.	18 00
12 in.	66 lbs.	23 00
14 in.	110 lbs.	36 00

CLINKER TONGS

Each	$1 50

CLIPS

Damper No-Rivet Steel, with tail pieces, per gross	$9 50
Rivet Steel, with tail pieces, per gross	7 50
Tail pieces, per gross	2 40

COPPERS—Soldering Pointed Roofing

3 lb. and heavier	per lb. 40c
2½ lb.	per lb. 45c
2 lb.	per lb. 48c
1½ lb.	per lb. 55c
1 lb.	per lb. 60c

CORNICE BRAKES

Chicago Steel Bending Nos. 1 to 6B	Net

CUT-OFFS

Gal., plain, round or cor. rd.

26 gauge	30%
28 gauge	35%

DAMPERS

Yankee Hot Air 7 Inch, doz.	$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

ADAMS No. 1 CHECK

Check and Collar Complete 8 inch, each	2 00
9 inch, each	2 25
End Check Only 8 inch, each	1 60
9 inch, each	1 85
Collar Only 8 inch, each	50
9 inch, each	65

No. 2 CHECK

8 inch, each	1 00
9 inch, each	1 00
10% Disc. on Adams No. 1 and No. 2 Check	
Diamond Smoke Pipe 7 inch, doz.	$2 00
8 inch, doz.	2 20
9 inch, doz.	4 80
10 inch, doz.	9 00

Adams' Sheet Metal

7 inch, doz.	$1 60
8 inch, doz.	2 20
9 inch, doz.	2 60
10 inch, doz.	2 80
12 inch, doz.	3 50
14 inch, doz.	5 00

EAVES TROUGH

Galv. Crimpedge, crated	75-10%
Zinc, "Barnes"	60%

ELBOWS

Conductor Pipe

Galv. plain or corrugated, round flat Crimp,

28 Gauge	60%
26 Gauge	45%
24 Gauge	15%

Galv. Terne Steel

Plain Rd. and Rd. Corr.:

28 Ga.	40%
26 Ga.	45%
24 Ga.	15%

Square Corrugated

No. 28 Gauge	50%
26 Gauge	35%

Portico Elbows

Standard Gauge Conductor Pipe, plain or corrugated.

Not nested	70 & 5%
Nested Solid	70 & 5%

Sq. Corr., A. & B. & Octagon

28 Ga.	50%
26 Ga.	35%

Portico

1", 1¼", 1½"	45%

Copper

16 oz., all designs	40%

Zinc—

All styles	60%

ELBOWS—Stove Pipe

1-piece Corrugated. Uniform Blue "Milcor" No. 28 Gauge.

	Doz.
5-inch	$1 15
6-inch	1 35
7-inch	1 75

Special Corrugated

6-inch	$1 60
7-inch	1 60

Adjustable—Uniform Blue

"Milcor" No. 28 Gauge. Uniform Blue.

5-inch	$1 60
6-inch	1 75
7-inch	2 10

WOOD FACES—60% off list.

FENCE

726-6-12½%	(100 rods) $28 63
1948-6-14½%	(100 rods) 43 62

FILES AND RASPS

Heller's (American)	50-10%
American	60-10%
Arcade	50%
Black Diamond	50%
Eagle	50%
Great Western	50%
Kearney & Foot	50%
McClellan	50%
Nicholson	50%
Simonds	50%

FIRE POTS

Geo. W. Diener Mfg. Co.	Ea.
No. 02 Gasoline Torch, 1 qt.	$ 5 15
No. 9250, Kerosene, or Gasoline Torch, 1 qt.	6 50
No. 10 Tinner's Furn. Square tank, 1 gal.	11 25
No. 15 Tinner's Furn. Round tank, 1 gal.	10 75
No. 21 Gas Soldering Furnace	8 00
No. 110 Automatic Gas Soldering Furnace	10 50

GALVANIZED WARE

Pails (Galv. after made), 10-qt.	$2 00
Tubs (Galv. after made). No. 1	5 75
No. 2	6 50

GLASS

Single Strength, A, all brackets	85%
Single Strength, B, all brackets	87%
Double Strength, A, all brackets	85%
Double Strength, B, all brackets	87%

HANGERS

Conductor Pipe	
Milcor Perfection Wire	35%
Milcor Triplex Wire	10%
Eaves Trough	
Milcor Steel (galv. after forming) from List	50%
Milcor Selflock E. T. Wire, List	10%

HOOKS

Conductor	
"Direct Drive" Wrought Iron for wood or brick	15%

HUMIDIFIER

"Front-Rank," Automatic	
In single lots	50%
In lots of 10 or more	50-5%
In lots of 25 or more	50-10%
Vapor pans, etc., each	50%

LIFTERS

Stove Cover	
Coppered	per gro. $6 00
Alaska	per gro. 4 75

MALLETS

Tinners	
Hickory	per doz. $2 25

MITRES

Galvanized steel mitres	
28 Ga.	70
26 Ga.	60-20

NAILS

Cut Steel, base	$4 00
Wire	
Common Wire, L. C. L.	2 20
Cement Coated	2 20

(Continued on page 254)

Bruno Martin's *New* Improvements

Patents on Four Attachments for Connecting to Old Style Torches.

The new way to heat Soldering Irons on New and Old Torches.

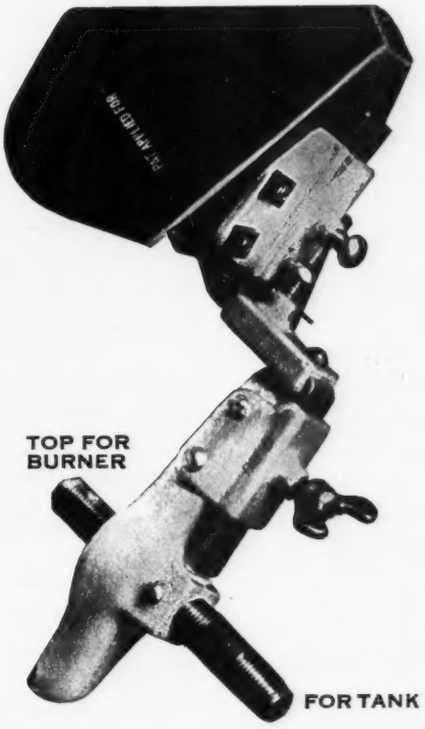
Something NEW for 1930

on new and old torches. The world's Surprise in TORCHES and FIRE-POTS

The old way to heat soldering irons. The method used for Forty Years.

"STANDARD PROTECTOR"

Bruno Martin's Latest Invention for Efficient Heating of Soldering Irons



It gives protection against wind and all Climatic conditions
Saves 50% on fuel and labor

For Complete Information write to

Geo. V. Bores,
112-07 Roosevelt Ave.
Corona, L. I. New York

Manager and sales-Agent for

Bruno Martin, Patentee
Saginaw, Mich.

ADVERTISERS' INDEX

The dash (—) indicates that the advertisement runs on a regular schedule but does not appear in this issue.

Markets--Continued from Page 252

PASTE

Asbestos Dry Paste:

200-lb. barrel	$14 00
100-lb. barrel	7 50
50-lb. pail	4 25
10-lb. bag	1 00
5-lb. bag	55
2½-lb. cartons	35

POKERS, FURNACE

Each **$0 75**

POKERS, STOVE

Nickel Plated, coil handles, per doz. **1 10**
W'r't Steel, str't or bent, per doz. **$0 75**

PIPE

Conductor
Cor. Rd., Plain Rd., or Sq.

Galvanized
Crated and nested (all gauges) 75-7½%
Crated and not nested (all gauges) 75-2½%

Furnace Pipe
Double Wall Pipe and Fittings .....50 & 10%
Single Wall Pipe, Round Galvanized Pipe ....50 & 10%
Galvanized and Tin Fittings .....50 & 10%

Lead
Per 100 lbs. $13 50

Stove Pipe
"Milcor" "Titelock" Uniform Blue Stove

28 gauge, 5 inch U. C. nested	11 00
28 gauge, 6 inch U. C. nested	12 00
28 gauge, 7 inch U. C. nested	14 00
30 gauge, 5 inch U. C. nested	10 25
30 gauge, 6 inch U. C. nested	11 00
30 gauge, 7 inch U. C. nested	13 00

T-Joint Made up
6-inch, 28 ga. ...per doz. $ 3 40
All Zinc
No. 11, all styles 60%

PULLEYS

Furnace Tackle....per doz. $0 85
.....per gro. 8 50
Furnace Screw (enameled)
.....per doz. 75

PUTTY

Commercial Putty, 100-lb. Kits **$3 15**

QUADRANTS

Malleable Iron Damper.....10%

REDUCERS—Oval Stove Pipe

	Per Doz.
7—6, 28-gauge, 1 doz. in carton	$2 00

REGISTERS AND BORDERS

Baseboard, Floor and Wall

Cast Iron 20%
Steel and Semi-Steel 33⅓%
Baseboard, 1 piece 33⅓-20%
Baseboard, 2 piece 33⅓%
Wall 33⅓%
Adjustable Ceiling Ventilators 33⅓%

Register Faces—Cast and Steel

Japanned, Bronzed and Plated, 4x6 to 14x14.....33⅓%
Large Register Faces—Cast, 14x14 to 38x42 .....50%
Large Register Faces—Steel, 14x14 to 38x42 .....60%

Ventilating Register

Per gross	9 00
Small, per pair	80
Large, per pair	50

RIDGE ROLL

Galv., Plain Ridge Roll, b'dld 75-15-5%
Galv., Plain Ridge Roll crated 75-15

SCREWS

Sheet Metal

7, ⅛x⅛, per gross $0 53
No. 10, ¾x3/16, per gross 63
No. 14, ⅞x¼, per gross.. 83

SHEARS, TINNERS' & MACHINISTS'

Viking **$22 50**

Lennox Throatless
No. 18 .....35%
Shear blades 10%
(f. o. b. Marshalltown, Iowa)

SHIELDS, ADJUSTABLE RADIATOR

No. 1 "Gem" 11" to 17"....30%
No. 2 "Gem" 14" to 24"....30%
No. 3 "Gem" 25" to 65"....30%

SHOES

Galv. 28 Gauge, Plain or corrugated round flat crimp..60%
26 gauge round flat crimp..45%
24 gauge round flat crimp..15%

SNIPS, TINNERS

Clover Leaf .....40 & 10%
National .....40 & 10%
Star 50%
Milcor .....Net

SQUARES

Steel and Iron .....Net
(Add for bluing $3 per doz. net)
Mitre .....Net
Try .....Net
Try and Bevel .....Net
Try and Mitre .....Net
Fox's .....per doz. $6 00
Winterbottom's 10%

STOPPERS, FLUE

Common .....per doz. $1 10
Gem, No. 1 .....per doz. 1 10
Gem, flat, No. 3....per doz. 1 40

VENTILATORS

Standard .....30 to 40%

WIRE

Black annealed wire, No. 9, per 100 lbs. $3 30
Galvanized barb wire, per 100 lbs. 3 30
Cattle Wire—galvanized catch weight spool, per 100 lbs.. 3 30
Galvanized Plain Wire, No. 9, per 100 lbs..... 3 75

W. H. Dennis of Dennis & Jocelyn, of Hamilton, Ontario, Canada, installed galvanized ARMCO Ingot Iron roofdecks, valleys, gutters, conductor pipes and flashing on this house when he built it in 1911.

Now, eighteen years later, this installation is in excellent condition. Dennis & Jocelyn, by using and recommending ARMCO Ingot Iron, has become one of the largest sheet metal companies in Hamilton.

"Never a complaint from an ARMCO Ingot Iron Job"

"WE have used many kinds of iron," writes Edward N. Kuntz, president of the Excelsior Cornice Works, 7821 Ivory Avenue, St. Louis, Missouri, "but have always found that ARMCO Ingot Iron is best. We have used it for five years and never had a complaint. We use ARMCO Ingot Iron for all our work, unless some other is specified.

More than a ton and a half of ARMCO Ingot Iron was used in this duct which is a part of the ventilating system of the Y. M. C. A. at 16th and Locust Streets, St. Louis, Missouri. The installation made by the Excelsior Cornice Works, has been used by this Ingot Iron Shop Contractor in converting many customers to the durable, blue triangled iron.

"On our job at the St. Louis Y. M. C. A. Building, 16th and Locust Streets, a different brand was specified, but we convinced them of the durability of ARMCO Ingot Iron. Now they know that it lasts, and saves."

Thousands of Ingot Iron Shop contractors are recommending ARMCO Ingot Iron and getting repeat sales because of its dependable long service.

Home owners, business men, and builders know that it pays to patronize the shop that does "quality work with quality iron."

DISTRIBUTORS ARMCO Ingot Iron PRODUCTS

ARMCO DISTRIBUTORS' ASSOCIATION OF AMERICA

Executive Offices: Middletown, Ohio

ARMCO INGOT IRON RESISTS RUST

BUYERS' DIRECTORY

Air Cleaners.
Meyer & Bro. Co., F., Peoria, Ill.
Watt Mfg. Co., Sterling, Ill.

Air Conditioning Machines.
Watt Mfg. Co., Sterling, Ill.

Asbestos Paper.
Sall- Mountain Co., Chicago, Ill.

Associations.
Copper & Brass Research Association, New York, N. Y.
National Warm Air Heating Association, Columbus, Ohio

Benches—Steel.
Maplewood Machinery Co., Chicago, Ill.

Blast Gates.
Berger Bros. Co., Philadelphia, Pa.

Blowers—Furnace.
Brundage Co., Kalamazoo, Mich.
Lakeside Co., Hermansville, Mich.

Bolts—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Brakes—Bending.
Dreis & Krump Mfg. Co., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Brakes—Cornice.
Dreis & Krump Mfg. Co., Chicago, Ill.

Brass and Copper.
American Brass Co., Waterbury, Conn.
Copper & Brass Research Association, New York, N. Y.
Revere Copper & Brass, Rome, N. Y.

Bronze.
Revere Copper & Brass, Rome, N. Y.

Cans—Garbage.
Diener Mfg. Co., G. W., Chicago, Ill.
Osborn Co., The J. M. & L. A., Cleveland, Ohio

Castings—Malleable.
Fanner Mfg. Co., Cleveland, Ohio

Ceilings—Metal.
Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Chaplets.
Fanner Mfg. Co., Cleveland, Ohio

Chimney Tops.
Standard Ventilator Co., Lewisburg, Pa.

Cleaners—Vacuum.
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio
Williamson Heater Co., Cincinnati, Ohio

Copper.
American Brass Co., Waterbury, Conn.
Revere Copper & Brass, Rome, N. Y.
Rockford Sheet Steel Co., Rockford, Ill.

Cornices.
Eller Manufacturing Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo,. La Crosse, Kan. City

Cut-offs—Rain Water.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Dampers—Quadrants—Accessories.
Eller Mfg. Co., Canton, Ohio
Howes Co., S. M., Boston, Mass.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp., New York, N. Y.

Damper Regulators.
H. M. Sheer Co., Quincy, Ill.

Dies—Punch & Press.
La Salle Machine Works, Chicago, Ill.

Diffuser—Air Duct.
Aeolus-Dickinson Co., Chicago, Ill.

Doors—Metal.
Lupton's Sons Co., David, Philadelphia, Pa.

Drills—Electric.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Drive Screws—Hardened Metallic.
Parker-Kalon Corp., 200 Varick St., New York

Dust Eliminator.
Dustless Ash Co., Muskegon, Mich.

Eaves Trough.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
New Jersey Zinc Sales Co., The New York, N. Y.
Rockford Sheet Steel Co., Rockford, Ill.

Elbows and Shoes—Conductor.
Barnes Metal Products Co., Chicago, Ill.
Dieckmann Co., Ferdinand, Cincinnati, Ohio
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Rockford Sheet Steel Co., Rockford, Ill.

Fittings—Conductor.
Barnes Metal Products Co., Chicago, Ill.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Flue Thimbles.
Milwaukee Corrugating Co. Mil., Chgo., La Crosse, Kan. City

Furnace Cement.
Connors Paint Mfg. Co., Wm., Troy, N. Y.
Eller Mfg. Co., Canton, Ohio
Lastik Products Co., Pittsburgh, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Furnace Cement—Liquid.
Technical Products Co., Pittsburgh, Pa.

Furnace Paste.
Larsen-Bennett Co., Omaha, Neb.

Fire Pots.
Bruno Martin, Saginaw, Mich.

Furnace Controls.
The Mercoid Corp., Chicago, Ill.

Furnace Cleaners—Suction.
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio.
Williamson Heater Co., Cincinnati, Ohio

Furnace Fans.
American Foundry & Furnace Co., Bloomington, Ill.
A-C Mfg. Co., Pontiac, Ill.
Brundage Co., The, Kalamazoo, Mich.
Lakeside Co., Hermansville, Mich.
A. H. Robinson Co., Massillon, Ohio
Warm Air Furnace Fan Co., The, Cleveland, Ohio
Watt Mfg. Co., Sterling, Ill.
Williamson Heater Co., Cincinnati, Ohio

Furnace Regulators.
H. M. Sheer Co., Quincy, Ill.

Furnace Rings.
Eller Mfg. Co., Canton, Ohio
Forest City-Walworth Run Foundries Co., Cleveland, Ohio
Milwaukee Corrugating Co., Milwaukee, Wis.

Furnace Switch—Automatic.
The Mercoid Corp., Chicago, Ill.

Furnaces—Gas.
Calkins & Pearce, Columbus, Ohio
Mueller Furnace Co., Milwaukee, Wis.
Payne Furnace & Supply Co., Beverly Hills, Cal.
A. H. Robinson Co., Massillon, Ohio

Furnaces—Warm Air.
Agricola Furnace Co., Gadsden, Ala.
American Foundry & Furnace Co., Bloomington, Ill.
American Furnace Co., St. Louis, Mo.
Brillion Furnace Co., Brillion, Wis.
Calkins & Pearce, Columbus, Ohio
Dowagiac Steel Furnace Co., Dowagiac, Mich.
Emrich Co., C., Columbus, Ohio
Excelsior Steel Furnace Co., Chicago, Ill.
Farris Furnace Co., Springfield, Ill.
Forest City-Walworth Run Fdy., Cleveland, Ohio
Payne Furnace & Supply Co., Beverly Hills, Cal.
Fox Furnace Co., Elyria, Ohio
Graff Furnace Co., Scranton, Pa.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Hess Warming & Ventilating Co., Chicago, Ill.
Langenberg Mfg. Co., St. Louis, Mo.
Lennox Furnace Co., Marshalltown, Ia.; Syracuse, N. Y.
Liberty Foundry Co., St. Louis, Mo.
London Furnace Co., London, Ohio
Ma Girl Foundry & Furnace Co., Bloomington, Ill.
Majestic Co., Huntington, Ind.
Marshall Furnace Co., Marshall, Mich.
May Fiebeger Furnace Co., Newark, Ohio
Meyer Furnace Co., The, Peoria, Ill.
Midland Furnace Co., Columbus, Ohio
Mueller Furnace Co., L. J., Milwaukee, Wis.
Oakland Foundry Co., Belleville, Ill.
Peerless Foundry Co., Indianapolis, Ind.
Premier Warm Air Heater Co., Dowagiac, Mich.
Richardson & Boynton Co., New York, N. Y.
Robinson Co., A. H., Massillon, Ohio
Robinson Furnace Co., Chicago, Ill.
Rybolt Heater Co., Ashland, Ohio
St. Louis Heating Co., St. Louis, Mo.
Standard Fdy. & Furnace Co., De Kalb, Ill.
Success Heater Mfg. Co., Des Moines, Ia.
Thatcher Co., The, Newark, N. J.
XXth Century Heating & Ventilating Co., Akron, Ohio
Waterman-Waterbury Co., Minneapolis, Minn.
Western Steel Products Co., Duluth, Minn.
Williamson Heater Co., Cincinnati, Ohio
Wise Furnace Co., Akron, Ohio

Glass—Wire.
Lupton's Sons Co., David, Philadelphia, Pa.

Grilles.
Auer Register Co., Cleveland, Ohio
Harrington & King Perforating Co., Chicago, Ill.
Hart & Cooley Co., New Britain, Conn.
Highton & Sons, Wm., Nashua, N. H.
Independent Register & Mfg. Co., Cleveland, Ohio
Tuttle & Bailey Mfg. Co., Chicago, Ill.

Grilles—Stove Front.
Tuttle & Bailey Mfg. Co., Chicago, Ill.

Guards—Machine and Belt.
Harrington & King Perforating Co., Chicago, Ill.

Handles—Boiler.
Berger Bros. Co., Philadelphia, Pa.

Handles—Soldering Iron.
Hyro Mfg. Co., New York, N. Y.

Hangers—Eaves Trough.
Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Heat Regulation Systems.
Mercoid Corp., Chicago, Ill.
H. M. Sheer Co., Quincy, Ill.

Heaters—Cabinet.
Fox Furnace Co., Elyria, Ohio
Waterman-Waterbury Co., Minneapolis, Minn.

Heaters—Combination Hot Water.
Alamo Heater Co., Chicago, Ill.
Standard Fdy. & Furnace Co., De Kalb, Ill.

Heaters—Domestic Hot Water.
Alamo Heater Co., Chicago, Ill.
Standard Fdy. & Furnace Co., De Kalb, Ill.

Heaters—School Room.
Meyer Furnace Co., The, Peoria, Ill.
Waterman-Waterbury Co., Minneapolis, Minn.

Hotels.
Fort Shelby Hotel, Detroit, Mich.

Humidifiers.
Automatic Humidifier Co., Cedar Falls, Ia.
Diener Mfg. Co., G. W., Chicago, Ill.
Meyer & Bro. Co., F., Peoria, Ill.
Mueller Furnace Co., L. J., Milwaukee, Wis.
Perfect Humidifier Co., St. Louis, Mo.
A. H. Robinson Co., Massillon, Ohio
Salada Mfg. Co., Minneapolis, Minn.
H. M. Sheer Co., Quincy, Ill.
Watt Mfg. Co., Sterling, Ill.

Lath—Expanding Metal.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Machines—Crimping.
Bertsch & Co., Cambridge City, Ind.

Machinery—Culvert.
Bertsch & Co., Cambridge City, Ind.

Machines—Tinsmith's.
Bertsch & Co., Cambridge City, Ind.
Dreis & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co., Chicago, Ill.
La Salle Machine Works, Chicago, Ill.
Maplewood Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Ia.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Metals—Perforated.
Harrington & King Perforating Co., Chicago, Ill.

Miters.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Miters—Eaves Trough.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Nails—Copper & Brass.
Revere Copper & Brass, Rome, N. Y.

(Continued on page 258)

BUYERS' DIRECTORY

(Continued from page 256)

Nails—Hardened Masonry.
Parker-Kalon Corp., New York, N. Y.

Nails—Lead Head.
Deniston Co., Not Inc., Chicago, Ill.

Oil Burners.
McIlvaine Burner Corp., Evanston, Ill.
E. L. Miller Mfg. Co., Kansas City, Mo.

Ornaments—Sheet Metal.
Eller Mfg. Co., Canton, Ohio
Gerock Bros. Mfg. Co., St. Louis, Mo.
Miller & Doing, Inc., Brooklyn, N. Y.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Paint.
Connors Paint Mfg. Co., Wm., Troy, N. Y.

Patterns—Furnace and Stove.
Cleveland Castings Pattern Co., Cleveland, Ohio
Quincy Pattern Co., Quincy, Ill.
Vedder Pattern Works, Troy, N. Y.

Perforated Metals.
Harrington & King Perforating Co., Chicago, Ill.

Pipe and Fittings—Furnace.
Chicago Furnace Supply Co., Chicago, Ill.
Eller Mfg. Co., Canton, Ohio
Henry Furnace & Fdy. Co., Cleveland, Ohio
Lamneck Co., W. E., Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Mueller Furnace Co., L. J., Milwaukee, Wis.
Osborn Co., The J. M. & L. A., Cleveland Ohio

Pipe and Fitings—Stove.
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Pipe—Conductor.
Barnes Metal Products Co., Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Dieckmann Co., Ferdinand, Cincinnati, Ohio
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
New Jersey Zinc Sales Co., The, New York, N. Y.

Presses.
La Salle Machine Works, Chicago, Ill.

Pipe Covering.
Sall Mountain Co., Chicago, Ill.

Punches.
Bertsch & Co., Cambridge City, Ind.
Interstate Machinery Co., Chicago, Ill.
La Salle Machine Works, Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Punches—Combination Bench and Hand.
Hyro Mfg. Co., New York, N. Y.

Punches—Hand.
Hyro Mfg. Co., New York, N. Y.

Putty—Stove.
Connors Paint Mfg. Co., Wm., Troy, N. Y.

Radiator Cabinets.
The Hart & Cooley Mfg. Co., New Britain, Conn.
Tuttle & Bailey Mfg. Co., Chicago, Ill.

Radiators—Shields.
Beh & Co., Inc., New York, N. Y.

Register Shields.
Beh & Co., Inc., New York, N. Y.

Registers—Warm Air.
Auer Register Co., Cleveland, Ohio
Eller Mfg. Co., Canton, Ohio
Forest City-Walworth Run Foundries Co., Cleveland, Ohio
Hart & Cooley Co., New Britain, Conn.
Henry Furnace & Fdy. Co., Cleveland, Ohio
Independent Register & Mfg. Co., Cleveland, Ohio
Ku-No Register Mfg. Co., St. Louis, Mo.
Lamneck & Co., W. E., Columbus, Ohio
Meyer & Bro. Co., F., Peoria, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Mueller Furnace Co., L. J., Milwaukee, Wis.
Rock Island Register Co., Rock Island, Ill.
Symonds Register Co., St. Louis, Mo.
Tuttle & Bailey Mfg. Co., Chicago, Ill.
Waterloo Register Co., Waterloo, Ia.

Registers—Wood.
American Wood Register Co., Plymouth, Ind.
Auer Register Co., Cleveland, Ohio
Eller Mfg. Co., Canton Ohio
Marsh Lumber Co., Dover Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Regulators—Heat.
H. M. Sheer Co., Chicago, Ill.

Ridging.
Armco Distributors Ass'n of America, Middletown, Ohio
Eller Mfg. Co. Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Rivets—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Rods—Stove.
The Kirk-Latty Co., Cleveland, Ohio
Lamson & Sessions Co., Cleveland, Ohio

Rolls—Forming.
Bertsch & Co., Cambridge City, Ind.

Roofing Cement.
Connors Paint Mfg. Co., Wm., Troy, N. Y.

Roof—Flashing.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Milwaukee, Wis.

Roofing—Iron and Steel.
Armco Distributors Ass'n of America, Middletown, Ohio
Central Alloy Steel Corp., Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Ryerson & Sons, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Roofing—Tin.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Taylor Co., N. & G., Philadelphia, Pa.

Roofing—Zinc.
New Jersey Zinc Sales Co., The, New York, N. Y.

Rubbish Burners.
Hart & Cooley Co., New Britain, Conn.

Schools—Sheet Metal Pattern Drafting.
St. Louis Technical Institute, St. Louis, Mo.

Schools—Warm Air Heating.
St. Louis Technical Institute, St. Louis, Mo.

Screws—Hardened Metallic Drive.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp., 200 Varick St., New York

Screws—Hardened Self-Tapping, Sheet Metal.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Parker-Kalon Corp., 200 Varick St., New York

Screens—Perforated Metal.
Harrington & King Perforating Co., Chicago, Ill.

Shears—Hand and Power.
Interstate Machinery Co., Chicago, Ill.
Marshalltown Mfg. Co., Marshalltown, Ia.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
Viking Shear Co., Erie, Pa.

Sheet Metal Nails.
Deniston Co., Not Inc., Chicago, Ill.

Sheet Metal Screws—Hardened, Self-Tapping.
Parker-Kalon Corp., 200 Varick St., New York

Sheets—Black and Galvanized.
Armco Distributors Ass'n of America, Middletown, Ohio
Central Alloy Steel Corp., Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Inland Steel Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Rockford Sheet Steel Co., Rockford, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
Taylor Co., N. & G., Philadelphia, Pa.

Sheets—Iron.
Armco Distributors Ass'n of America, Middletown, Ohio
Central Alloy Steel Corp., Massillon, Ohio
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Sheets—Tin.
Taylor Co., N. & G., Philadelphia, Pa.

Shingles and Tiles—Metal.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Sifters—Ash.
Diener Mfg. Co., G. W., Chicago, Ill.

Sky Lights.
Eller Mfg. Co., Canton, Ohio
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Smoke Pipe—Cast Iron.
Waterloo Register Co., Waterloo, Ia.

Snips.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Solder.
Eller Mfg. Co., Canton, Ohio
Kester Solder Co., Chicago, Ill.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Soldering Coppers.
Revere Copper & Brass, Rome, N. Y.

Soldering Furnaces.
Burgess Soldering Furnace Co., Columbus, Ohio
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Soldering Supplies.
Kester Solder Co., Chicago, Ill.

Specialties—Hardware.
Diener Mfg. Co., G. W., Chicago, Ill.

Stars—Hard Iron Cleaning.
Fanner Mfg. Co., Cleveland, Ohio

Statuary.
Gerock Bros. Mfg. Co., St. Louis, Mo.
Miller & Doing, Inc., Brooklyn, N. Y.

Stove Pipe Reducers.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Tinplate.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Taylor Co., N. & G., Philadelphia, Pa.

Tools—Tinsmith's.
Bertsch & Co., Cambridge City, Ind.
Dries & Krump Mfg. Co., Chicago, Ill.
Hyro Mfg. Co., New York, N. Y.
Interstate Machinery Co., Chicago, Ill.
Maplewood Machinery Co., Chicago, Ill.
Osborn Co., The J. M. & L. A., Cleveland, Ohio
Rockford Sheet Steel Co., Rockford, Ill.
Southington, Conn.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.
Viking Shear Co., Erie, Pa.

Torches.
Burgess Soldering Furnace Co., Columbus, Ohio
Bruno Martin, Saginaw, Mich.
Diener Mfg. Co., G. W., Chicago, Ill.
Ryerson & Son, Inc., Jos. T., Chgo., N. Y., St. L., Det., Cleve.

Trade Extension.
Sheet Steel Trade Extension Committee, Cleveland, Ohio

Trimmings—Stove.
Fanner Mfg. Co., Cleveland, Ohio

Vacuum Cleaner—Furnace.
Brillion Furnace Co., Brillion, Wis.
National Super Service Co., Toledo, Ohio
Williamson Heater Co., Cincinnati, Ohio

Ventilators.
Aeolus Dickinson Co., Chicago, Ill.
Arex Company, Chicago, Ill.
Berger Bros. Co., Philadelphia, Pa.
Eller Mfg. Co., Canton, Ohio
Kernchen Co., Chicago, Ill.
Lupton's Sons Co., David, Philadelphia, Pa.
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City
Royal Ventilator Co., Philadelphia, Pa.
Standard Ventilator Co., Lewisburg, Pa.

Ventilators—Ceiling.
Hart & Cooley Co., New Britain, Conn.
Henry Furnace & Fdy. Co., Cleveland, Ohio

Windows—Steel.
Lupton's Sons Co., David, Philadelphia, Pa.

Wood Faces—Warm Air.
Auer Register Co., Cleveland, Ohio
American Wood Register Co., Plymouth, Ind.
Eller Mfg. Co., Canton, Ohio
Milwaukee Corrugating Co., Mil., Chgo., La Crosse, Kan. City

Zinc.
New Jersey Zinc Co., The, New York, N. Y.

WANTS AND SALES

Yearly subscribers to the AMERICAN ARTISAN may insert advertisements of not more than fifty words in our Want and Sales Columns WITHOUT CHARGE for three insertions.

Such advertisements, however, must be limited to help or situation wanted, tools or equipment for sale, to exchange or to buy, business for sale or location desired and must reach our office by Thursday of the week of publication. This privilege is not extended to manufacturers or jobbers—or those making a business of buying and selling used machines—employment agencies and brokers.

When sending advertisement state whether your name or blind number is to be used.

BUSINESS CHANCES

Lightning Rods—Dealers who are selling Lightning Protection will make money by writing to us for our latest Factory to Dealer Prices. We employ no salesmen and save you all overhead charges. Our Pure Copper Cable and Fixtures are endorsed by the National Board of Fire Underwriters and hundreds of dealers. Write today for samples and prices. L. K. Diddle Company, Marshfield, Wis.

BUSINESS CHANCES

Partner wanted with a little capital, say $500.00 or $800.00 to go 50–50 with me in the plumbing and wind mill business. Good opportunity here. Address M. C. Christensen, Box 714, Hemingford, Nebr. Z–511

For Sale—Sheet metal, auto radiator, body and fender shop in town of about 8,000. Must leave for coast on account of wife's health. For particulars write Service Sheet Metal Works, Longmont, Colo. A–512

For Sale—Sheet metal and furnace business established 10 years on northwest side, well equipped and paying. Did $25,000 work past year. Contracts signed up for coming year. Will sacrifice as I must leave city. Cash or terms. All offers considered. Wonderful opportunity for ambitious party. Address B–512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—Sheet metal shop. Fully equipped. Enjoying good business in the best southern Illinois city of 12,000. Sickness compels me to sell out. You could look this U. S. over and not find a better place. Investigate. Address C–512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale — Furnace and sheet metal shop. One other shop; in fine town of 6,000. If you are interested in making $3,000 per year and have $800 to invest in full set of tools and merchandise, write or wire W. W. Rice, Shenandoah, Iowa. O–512

SITUATION WANTED

Situation wanted by manager and sheet metal estimator; one who knows what overhead is, how to find it and what to do with it, as well as knowing labor cost in general sheet metal work and heating. Practical man with technical and business education. Address G–512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

SITUATION WANTED

Having sold my share of hardware business with 20 years' experience in plumbing, hot air, steam and hot water heating, sheet metal, pump and wind mill, farm machinery and electric work, would consider year around job anywhere. 45 years of age, married sober and industrious. Address Chas. Fisher, Cazenovia, Wisconsin. R–511

Situation wanted by A–1 first class all around mechanic, foreman and layout man. My experience has covered phase of the sheet metal business. Married, sober, steady, a fast and neat worker. Can handle any job. Prefer inside work. A–1 references. State wages and particulars. Address "Hiram," 1305 S. Madison St., Muncie, Ind. S–511

Young married man making study of heating, ventilation and air conditioning wants steady work. Has experience in machine shop, steam engineering, refrigeration and some sheet metal work. Will leave town. Address Geo. C. Beardsley, 611½ Shelby Ave., St. Paul, Minn. T–511

Are you in need of a good active stove salesman in the early forties. I am interested in a good snappy line of coal ranges, circulators and gas stoves. A line that can demand volume business for states of Missouri and Iowa. What have you to offer for the coming year. Address W–511, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Can you use a man in your business who thoroughly understands warm air furnace business, code estimating, installation, canvassing and selling. Have a fair knowledge of hardware and furniture retail business. Had good office training. Employment must be year around. Remuneration not unreasonable. Address X–511, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

A competent licensed plumber, tinner and heating man wants position or will take a shop on commission. Address E–512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

SITUATION WANTED

Position Wanted — A first-class sheet metal worker who can cut patterns and handle anything in the business will be at liberty about January 1. Wants steady job. Will go anywhere. State wages and working conditions. Address T-512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Business executive wants communication with some reliable firm after January 1st. Can fill any position in the sheet metal and furnace business. 37 years of age. Can furnish best of references. Will go anywhere. Only companies with good rating will be considered. Address J-512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Furnace Salesman—Very familiar with trade in New York and Pennsylvania, highly efficient in engineering as well, technique and practice, will consider other territory. An interview will prove of interest. Address H-512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

Stove and furnace salesman, six years' road experience, four years Illinois and Wisconsin territory, with a proven successful record, desires connection Jan. 1st. Address F-512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

MISCELLANEOUS

New Monitor Automatic Oil Burner with all instructions for installing. Everything complete for $210. Cost $465. In good shape. Address Robinson Sheet Metal Works, 6100 King Hill Ave., St. Joseph, Mo. K-512

TINNERS' TOOLS

Wanted—8-foot brake in good condition. Cash for right price. Address Schwarzkopf Sheet Metal Works, Waupaca, Wis. X-512

For sale or trade on other sheet metal tools: 1 No. 2 Simplex combined shears and punch, like new. Need bar folder, groover, beading machine or other tools. Kersten's Tin Shop, 1511 N. 8th St., Sheboygan, Wis. Y-512

For Sale—Complete set of tinners' tools, including one 8-foot brake, 30" square shears, 30" rolls, 30" bar folders, one Serpentine shears, 18 ga. cap. (new), wiring, turning, burring and crimping machines with standard grooving machine and all stakes too numerous to mention. A complete list will be furnished on request. Address M-512, AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

For Sale—One 6 in. steel brake in good condition. Price $55.00. Address Greene Sheet Metal Co., Decatur. Ill. Y-511

Wanted — Used Chicago steel binding brake. Must be right price. Address Edward F. Lappe, 2110 West Virginia St., Evansville, Ind. L-512

HELP WANTED

Wanted at Once—First-class tinner and furnace man. Steady job for right party. $40 per week. 8-hour day. Address J. H. Barnett, Dodge City, Iowa. W-512

BOOKS

The Standard Code Computing Rule, which is adapted from Article III of the 5th Edition of the Standard Code, is being used by warm air heating men all over the country. Here is what the Computing Rule will determine: (1) The warm air pipe and register areas for first, second and third floor rooms. (2) The areas necessary for 70° inside temperature when the outside temperatures are zero, 10, 20 and 30 degrees above or below zero. (3) The areas from the contents, glass, wall, roof and ceiling. The factors as covered in Table "A" are represented in accurate form. (4) The areas for rooms having one, one and one-half and two air changes per hour. (5) The unusual exposure requirements as the 10% for east and west and 15% for northeast, north and northwest rooms. Rule is circular, measuring 5½ inches in diameter and ⅛ inch thick, being made of specially prepared celluloid. Washable and unbreakable.

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Here are the two books that most sheet metal workers and contractors classify as the most complete books on Sheet Metal Pattern Cutting. The Universal Sheet Metal Pattern Cutter, Vol. 1, deals with every phase of inside work, including Heating, Ventilating, Blower and Exhaust Piping Connections, Marine Sheet Metal Work, Automobile Sheet Metal Work, Machinery and Belt Guards, etc. Mensuration applied to Sheet Metal Work, etc., with many features of construction and Labor Saving Methods are also given in detail.

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The Revised Edition of the New Metal Worker Pattern Book by Kittredge and Associates is one book that should be in every shop. As a reference book alone it is indispensible. Over 500 9x11-inch pages with 895 illustrations. It covers the principles underlying practically every problem that is likely to come up in daily practice. Beginning with the selection and use of drawing tools, the author explains linear and geometrical drawing so clearly that one who has had no previous knowledge of arithmetic or drawing may understand these essentials and apply them. The most approved methods of pattern cutting are also given in the course of the work. Price, $6.00, postpaid. Order from the Book Dept., AMERICAN ARTISAN, 139 N. Clark St., Chicago, Ill.

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Have immediate opening for young man, thoroughly competent, to supervise shop manufacturing warm air furnace fittings for the trade. Year around position. Give your experience in detail and references in first letter. Address Lennox Furnace Co., Inc., 400 N. Midler Ave., Syracuse, N. Y. P512

WANTED

Salesmen to call on jobbers and manufacturers. Write for particulars. Alamo Heater Co., 6143 Wentworth Avenue, Chicago, Ill. R512

AM DESIROUS OF

obtaining two or three small accounts, novelties preferred, to introduce to the retail hardware trade of southern California. Have for many years covered this section in the interest of a large manufacturing concern and am well known to practically every hardware dealer in the territory. John S. Sanders, 1959 N. Wilton Place, Hollywood, Calif. S512

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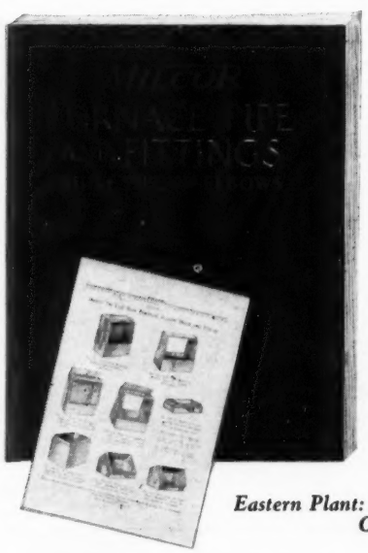

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